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what life?

While we love *Half-Life* and its varied appendices like an aggrophobic chimney sweep loves his job, we can't help feeling a little disappointed as its sequel's release date slips off into the sunset. So when Avid released ***Softimage XSI EXP***, a modelling tool for *HL2*, we jumped at the chance to try it out. We've got the full program on the DVD for you this month.

Elsewhere this month, we've a new tutorials on mapping for the amoral modern RTS *C&C: Generals*. We also finish up our series on *The Sims*, *Unreal Ed*, *Far Cry*, *Savage* and *The Game Factory Pro*, leaving us open for a whole new buncha stuff next month. Finally, we've an interview with the developers of *Uplink* and a quick look at their latest game, *Darwinia*.

gamemaker@futurenet.co.uk

Dan

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on your dvd

ALL THE ELEMENTS YOU NEED TO MOD YOUR GAMES. THIS MONTH: SOFTIMAGE XSI EXP FOR *HALF-LIFE 2*.

EDITORS
17 GAME EDITORS INCLUDING...
BATTLECAFT EDITOR 2.1
CALL OF DUTY MODS & MAPS TOOLS
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THE DUNGEON SIEGE TOOL KITS 1.5
MASSIVE ASSAULT SCENARIO EDITOR
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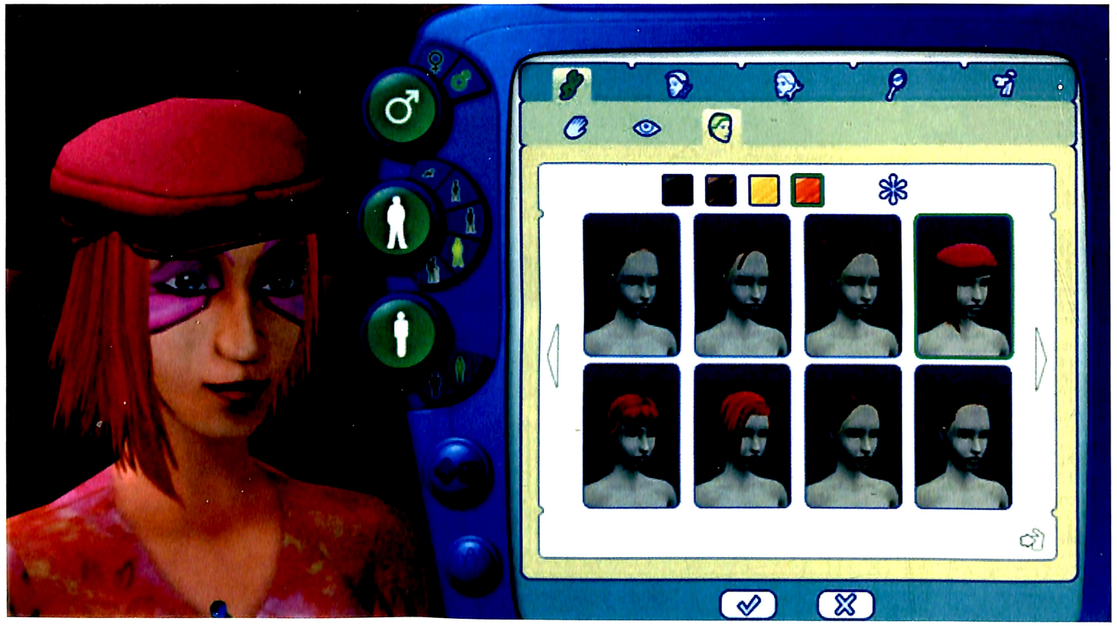
THE SIMS
AND LOTS MORE.

news

LIKE ALCOHOL, CHOCOLATE AND EXERCISE, MARK HOLTHAM LIKES TO TAKE THINGS IN MOD-ERATION. HE'S GOT MORE SENSE THAN YOU'D MERIT HIM, REALLY.



The 'slap it on with a trowel' ethos will be common in Simsland.

Remember to choose wisely, as DNA will be passed on to future generations.

Sims 2 Body Shop

Now you can release the fevered fruits of your imagination into the *Sims* community in the form of community-created characters.

Ever fancied creating an online doppelgänger? Maybe not, but now you too can create those sorely missed gaming avatars, Alf Garnet and Dot Cotton, via a new *Sims* tool. In May this year EA is to follow in the footsteps of other mod-supporting companies, with the release of *Sims 2 Body Shop* in advance of the game's full release later this year.

The new software (named CaSIE, Create-A-Sim Independent Editor, by the *Sims'* fan base) will work as a standalone program, allowing you to perfect your abominations and share them via the internet with friends and fans alike. You'll be given the ability to alter facial features (such as the nose and jawline), clothing and even add your own custom-designed tattoos. The most promising part of this software is that textures and tattoos can be created in image editors from *Microsoft Paint* to *Adobe Photoshop*. Considering that most programs can import and export *MS Paint* files, this means pretty much anyone with a PC will be able to tweak their Sims.

The Sims 2 Body Shop has been touted by the overwhelmingly populated *Sims* community as a free mini game. Considering the popularity and effort that people have put into creating additional content for *The Sims*, it would be easy to assume that the tool would prove to be as equally enjoyable as the game itself.

There is however a concern that the quality of detail of each Sim could lead to community-created characters that represent the rich and famous. A slew of celebrity look-a-likes could lead to infringements and possible lawsuits by their real-life counterparts. Moving down past the D list, though, it would be intriguing to see our dear editor in a tutu.

www.thesims2.com

Neverwinter Nights community expansion pack

Humungous – a word usually reserved for describing large buildings and sci-fi monsters. It's also an apt adjective for this community-created expansion pack. It's been two years in the making, and a dedicated team has added an astonishing number of extras to *Neverwinter Nights*. The package includes 14 new weapon types, over 1,440 placeable items, 450 new creatures, to name just a few of the delights that await you.

http://nwn.bioware.com/players/cep.html

Shattered Oasis 2.0

Shattered Oasis for *UT2003* was launched last year and didn't live up to either the players' or the development team's expectations. This second incarnation is a brand new rebuild of the game. It offers Deathmatch and Team Deathmatch modes for both on- and offline play. Significant changes are a requirement for mods to re-enter the Make Something Unreal contest, so if you didn't enjoy the original release the current improved version could still be worth a look.

www.shatteredoasis.jolt.co.uk

Unreal Engine 3

At both the recent Games Developers' Conference and the launch of NVIDIA's GeForce 6 graphics cards, Epic has been treating people to demos of its fantastic third-generation *Unreal* engine, which will require *Shader Model 3.0*-capable hardware. In the past, the company has gone out of its way to create an *Unreal Ed* that will be useable by anyone who wishes to enter the murky world of modding, and it will do so again this time round. New additions will be in the form of a sandbox-style terrain editor for creating landscapes, and a new physics system which can be manipulated via the oddly named PhAT tool. In the 20-minute demo Epic gave, we were treated to demos of several 'normal mapped' creatures, creating high-polygon effects in low-poly models. The engine is expected sometime late next year.

www.epicgames.com

Psyonix Onslaught source code

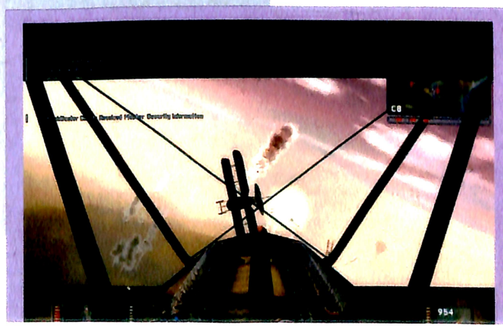
It will be a surprise for most to learn that *Unreal Tournament 2004*'s new Onslaught gameplay mode was not created by Epic. The original creator was Psyonix, a little-known company based in America that focuses on game development using *Unreal* technology. Now available on the official Psyonix site is the Onslaught source code – a potential must for mod coders using *Unreal Ed*.

www.psyonix.com

Make Something Unreal Phase 2

The Epic and NVIDIA 'Make Something Unreal' competition has now reached its second phase and finalists have been announced for all categories. In the FPS division *UT2003 Troopers: Dawn of Destiny* and *Red Orchestra* face off as top contenders among a strong group of highly polished community mods. In the non-FPS division, Phase 1 winner *Deathball* looks to steal the top title. Good luck to all teams.

www.unrealtournament.com



Battlefield 1918

Most mods, and even games for that matter, never dive into the First World War era as a basis for gaming. Except this one. Brand new models and vehicles have been recreated in *Battlefield 1918*, including biplanes. The game itself doesn't feel simulated like the other *BF1942* mods, making it an easy pick-up-and-play game. Budding Red Barons will be delighted with the air combat battles, too.

www.battlefield1918.de/news

INDUSTRY EYE

For all but manicurists, many hands make light work, says **Owain Bennallack**, editor of *Develop* magazine.

This column is meant to reveal what professional game developers are doing – at least when they're not going bust. Strangely enough, this month's idea – distributed development – came from people like you in the first place.

The past few years have seen game production values soar. As a result, more hands are needed to make a game. But people are expensive, hard to recruit, and difficult to manage. Worse, they might only be needed for a limited stint – there's no point in paying for the best 3D artists while your programmers are still working on the game engine.

Instead of oscillating their teams between loafing and late nights, some smart studios have changed the way they work, outsourcing routine textures to third-party companies based in Eastern Europe, India or Asia, say, or hiring staff on short-term contracts. Staff may never even join the team – instead, they get hooked up via an intranet and go to work without so much as putting their shoes on. Software packages like NXN's *alienbrain* help with the myriad of logistical issues – you don't want somebody creating hippos out of rhino models in *3ds max*, for instance, only for someone else to be diligently sticking the horns back on the hippos.

The parallels with mod teams are clear. Almost by definition, the average modder works part-time from a bedroom or an after-hours office, swapping notes via email and files via shared web pages. But while modding kicks off after a game is released, developers are now trying to pull the modders in beforehand. For *X2: Beyond the Frontier* development, German studio Egosoft set up DevNet, a network of forums, job listings, technical documents, chat rooms and sample code stores accessible to the thousands of registered fans who wanted to help with the project. Some tested the game before its release, while others fed the 'ideas database', with Egosoft cherry-picking the best for its game.

Similarly, before *The Sims* was released, Maxis distributed tools for designing Sim furniture, clothes and wallpaper, and the final game benefitted from both a ready-made community and more consumer durables than your local branch of Argos.

Can you do this? Even if you're already working with a far-flung mod team, what about setting up a further outer layer, where the fans of tomorrow can help build your game today? When even the professionals are worried about the overheads of modern game making, surely you need all the help you can get?

www.developmag.com

***Half-Life 2* isn't out yet, but the tools to produce the models and props for the game are. Valve has teamed up with Avid, the 3D creation company responsible for the special effects in the *Matrix* trilogy as well as animations for the *AniMatrix*.**

With these tools, Valve is promising unparalleled levels of details in its characters. We'll show you the software it uses that is now freely available to each and every one of you.

SOFTIMAGE XSI EXP

GET TO GRIPS WITH THE TOOLS USED TO CREATE *HALF-LIFE 2*. BE ANIMATED.

Valve is raising the bar with *Half-Life 2*. Not only will it have sublime graphics and special effects using the latest DirectX 9 graphics hardware, but they have also invested an enormous amount of time and money developing believable and realistic characters: something a lot of games developers simply over look.

Part of this research involved consultation with psychologist Paul Ekman, who has studied facial expressions for over 20 years. All his knowledge was put into Valve's new project; every character has 25 muscles in their face that can be manipulated to realistically produce any emotion. In game, the hope is that this will add to the suspension of disbelief, helping to make you really care about each of your characters.

To produce these models, Valve looked to Avid for help, a company previously ignored by other game developers who tend to work with *Maya* and *3ds Max*. You've probably seen in game screen shots of *Half-Life 2* already, so we're confident there's no need to tell you how good they look.

In this tutorial we'll show you the basics of Avid's *Softimage XSI EXP* for *Half-Life 2* that is available on the cover disc. We'll assume you have no experience with 3D modelling.

Nick Mohr has over seven years experience within the *Quake* and *Half-Life* modding community. He has been actively involved with many mods including *Team Fortress Classic* and *Counter-Strike*.

ON THE DISC

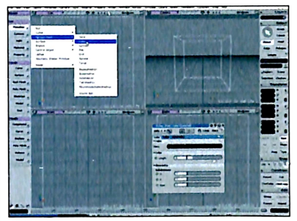
DIFFICULTY INTERMEDIATE

TIME TAKEN 2 HOURS

WHAT YOU NEED *Softimage XSI EXP* for *Half-Life 2*, found on cover disc.

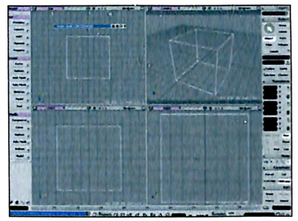
// GETTING TO KNOW XSI EXP

Before we do the exciting stuff, let's sit back and learn the fundamentals.



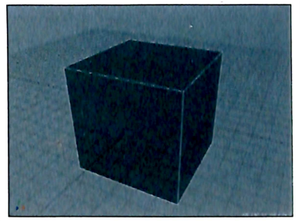
01 CREATING PRIMITIVES

Once you have installed and loaded *XSI*, a fairly standard looking 3D modelling package will appear in front of you. If you haven't used one before, it may initially seem a daunting prospect. But fear not; most of the functions will quickly become second nature. To begin making your first model, close the **Netview window**, look over to the top left hand corner and click **primitive ➡polygon mesh ➡cube**. Hey presto, a cube appears in all the view ports.



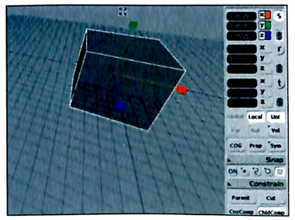
02 VIEWING OBJECTS

The size of the cube can be changed in the properties box that automatically appears with the creation of any primitive. Pressing **[Shift]** whilst moving the length slider will give you greater accuracy for adjustment, or alternatively you can enter a number directly, for example, 5. Hitting **[Z]** and **left-clicking** will allow you to pan around in any of the windows, while **[Shift]** and **left mouse** or **middle mouse** buttons will let you zoom and unzoom respectively.



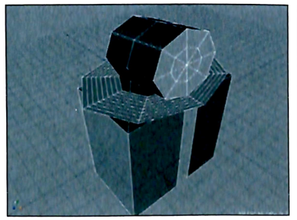
03 ALTERNATIVE VIEWPOINTS

Any of the viewpoints can be customised to whichever axis you wish to view from, by clicking the purple background at the top of each window. It is also possible to change how objects are previewed in each window: in the camera view, click **Wireframe** and select **Realtime Shaders** from the drop down list. The cube can be rotated in the Camera view by pressing **[S]** and the **right mouse** button; pressing the middle mouse button allows you to travel through a 3D world.



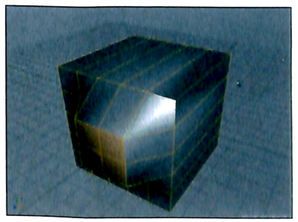
04 MANIPULATE YOUR CUBE

In the **Transform** menu on the right hand side, you will see 3 buttons **[S]**, **[R]** and **[T]** that allow you to adjust the scale, rotation and position of a selected object. Highlight the cube (it will appear white in the wireframe views), then click on the **r button** and check the **X**,**Y** and **Z axis** using **shift** and **right mouse** button. The cube can now be rotated along any axis using the 3 mouse buttons. **Scaling** and **translations** are done in the same manner.



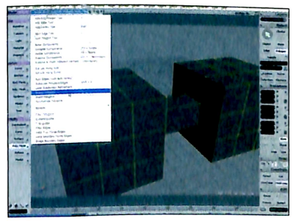
05 CREATING DIFFERENT SHAPES

By now, you should be confident at scaling, rotating, and translating objects, whilst getting to know your way around the viewing system. With the use of different primitives, it's possible to create some more sophisticated objects in the scenes, such as cylinders and spheres, although nothing too complex. Once you have many individual primitives in a scene, you will find the scene button in the **Select** menu helpful to change the properties of previously created shapes.



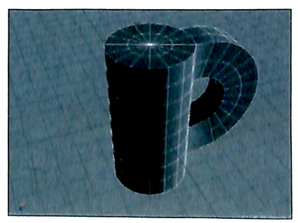
06 SUBDIVISION SURFACES

Subdivisions are an extremely important part of the model making process, allowing you to create complex shapes, with ease. Create a cube of any size, but this time change the values of **U** and **V**, to **5**. Hit **[U]** and **select 4 subdivisions** on one side of the cube with the **right mouse button**. These can now be manipulated with the transform tools just like any primitive. Be careful not to make overly complex shapes though, as this makes shapes extremely difficult to texture.



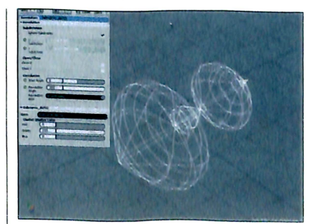
07 JOINING PRIMITIVES

Create a new scene and add **2 cubes** with **3** as the value for the **U**, **V** and **base subdivisions**. Highlight both cubes and click **Create ➡Poly. Mesh ➡Merge**: this creates a new object under the scene button known as polymsh (this is just a name and you can change it to suit). With this new item highlighted, press **U** and select **2 subdivision** on the face of the cubes that are facing each other. To join these up, click **Modify ➡Poly. Mesh ➡Bridge Polygons**.



08 EXTRUDING THINGS

Create a **cylinder** with a **radius 2**, **height 8**, **U 16** and **V 8**. Press **U** and in the right viewpoint select the **top 4 middle subdivisions**. Select **Modify ➡Poly. Mesh ➡Extrude along axis**. In the new window, adjust the **length** to **7** and give it **10 subdivisions**. Still using the **new properties windows**, click **transform** and change the **x value** under rotation to **15**. You can now join the handle back to cylinder using the same method from step 7.



09 CURVES AND CIRCLES

More complicated shapes can be made by drawing **NURB diagrams**. Select **Create ➡Curb ➡Draw CV NURBS**, and in the front view create a wavy line. With the line highlighted, select **Create ➡Surface ➡Revolution Around Curve** and pick the line. Different results can be obtained using **Revolutions Around Axis**: like primitives, these shapes can be manipulated. These are changed into primitives via the **Create ➡poly. Mesh ➡NURBS** to **Mesh command**.

LIMIGTATIONS OF XSI EXP

Just how different is *XSI EXP* to its bolder, bigger brother.

***Softimage XSI* for *Half-Life 2*, like its free counter parts *Maya PLE* and *Discreet's G-Max*, have limitations to stop their software from being commercially exploited, while still being able to groom a new generation of 3D artists. For both the companies and the users, it really is a win-win situation.**

The most obvious limitations appear in the rendering pipeline. Rendered pictures are watermarked and limited to 510 x 510 pixels; accordingly preview rendering is limited to 400x 300 pixels and the process is limited to one CPU only. The second major limitation is the ability to only export to Valve's SMD model format and with a maximum of 4000 triangles per model, although there is thankfully no triangle or polygon restrictions when saving to *XSI EXP*'s file format but it is mutually exclusive with other Softimage products. There are other minor limitations, but on the whole there isn't really a huge difference to the commercials version.

SHORT-CUTS

Smarter and swifter than using your mouse.

Like any application, *XSI* supports the standard shortcut keys familiar to most users. Our personal favourites include the beloved [CTRL + Z] to undo last action (always helpful to get you out of sticky situations) and the legendary [CTRL + S] for quick saving. Other standard shortcuts such as copy / paste and selection shortcuts are still available. Here is a short list of the most used *XSI* shortcuts:

Keyboard [1-4]
Switch Primary Toolbars

CTRL + [1-4]
Switch Secondary Toolbars

Keyboard 5
Activate Browser

Shift + 5
Activate Netview

Keyboard 6
Activate Layer Control

Spacebar
Activate Selection Tool

R
Activate Raycast Polygon selection tool

X, C & V
Activate Scale, Rotate and Translate.

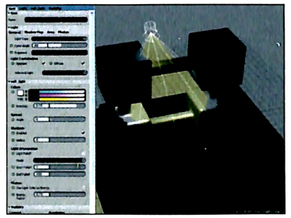
Z
Pan and Zoom Tool

S
Rotate and navigation tool

Q
Activate quick render

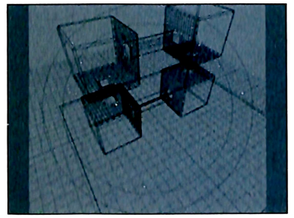
// TEXTURING AND LIGHTING PRIMITIVES

Bring Your Models To Life with Advanced Light And Texture Functions



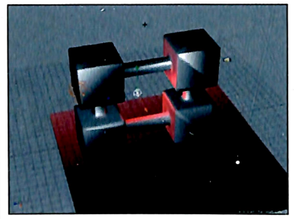
01 CREATING A LIGHT

Before you can begin to texture your scenes, it's advisable to set up a light source so the objects can be viewed properly in render mode. Create a new scene with a variety of primitives in, and then click **Get ➡ Light ➡Spot**. Various properties can be adjusted for the spot light, such as colour, brightness (intensity) and cone angle. For the time being, just enable shadows and set the **umbra value** to **0**, which will cast sharp shadows on objects.



02 MOVING THE LIGHT

The easiest way to move the camera is through the 3D view. Go to full screen 3D mode then click **Camera ➡Spot Lights ➡Spot**. This gives you the camera's point of view, so, wherever you navigate, then becomes the new position of the spot light. The two circles represent the inner and outer limits of the spot light. Hit **[S]** and use the **mouse keys** to find an angle you are happy with. Return back to standard camera mode and render the scene.

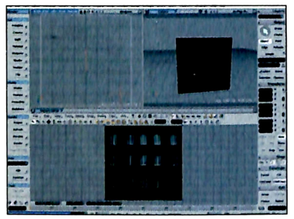


03 POINT LIGHTS

A simple light can be created using **Get ➡Light ➡Point**, which produces a universally projecting light and therefore doesn't need the use of an angle or cone projection settings. Apart from that, it is very similar to the previous light. And like all other objects, it can be moved about using the transformation tool, but there is no need to rotate it. As with all the other steps, it is worth investing time to experiment with different light settings, to yield different results.

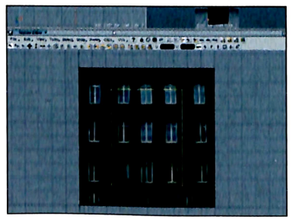
04 TEXTURING

Now we have set-up some basic lights, we can begin to texture the primitives. Press **[Keyboard 3]** to enter **Render mode**, and you will see the menus on the left change. Highlight a primitive and select **Get ➡Texture ➡ Image**; click **yes** to the **Shared Material dialog** if it appears. In the image windows, click **New ➡New From File**. *XSI* has a number of textures to choose from, although you can add any textures, images or picture you want.



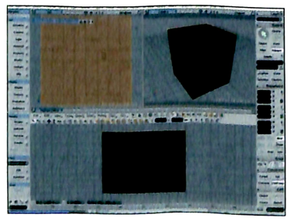
05 MORE TEXTURING

Choose one of the textures, such as **building.jpg** and click **OK**. Return back to the image window and click the second **New button** next to texture projection box. Select **Planar XY**. This arbitrarily applies the texture to your chosen primitive in a completely random manner on 1 side. Select the **Texture Editor** in the **C window** and middle click the maximise button to stretch the window across the bottom. Select **Texture Mode** in the **3D window**.



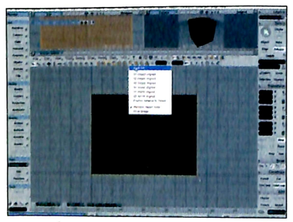
06 TEXTURE EDITOR

In the **Texture Editor**, zoom out a little and drag a box over the texture to highlight the 4 points of the cube. The square can now be manipulated over the texture. Use the **[X]**, **[C]** and **[V]** keys to scale, rotate and pan the texture respectively over the primitive. You can edit the texture projection view to gain a more exact transformation of the images. To re-enter the texture properties dialog, click **Modify ➡Texture ➡building.jpg** or the correct name of the texture.



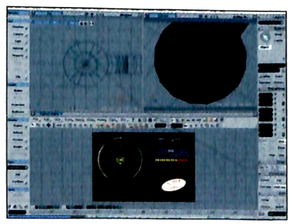
07 MULTIPLE TEXTURING

Only one texture can be added to any one primitive, so to add a roof to this picture a second cube is made with the **tillable_roof.jpg** employed. The roof texture can be applied in the same way as the previous step but may need to be scaled down. Use the **Raycast tool**, button **[U]**, in the 3D plane and select the top of the roof. In the **texture editor**, click **view ➡show selected**, find the **planar subprojection button** and select **best fit**.



08 SUBPROJECTION TOOLS

The roof texture is massively under scaled; changing the options under planar subprojection whilst referring to the 3D textured view is the quickest way to adjust the texture. Depending on how the scene is set up, the textures may need rotating. This method can be used to apply textures to individual or groups of subdivision surfaces; depending on shape, the surfacing can be adjusted using the planar, cylindrical, spherical or Contourstretch subprojection tools.



09 SURFACE TEXTURING

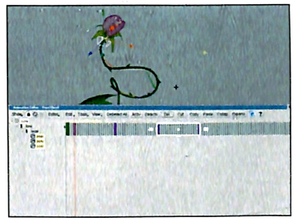
Use the object that was made in step 8 and apply the **boombox-.1.jpg** to it. In texture projection, click **New ➡UV**, then open the **texture editor** in **window C**. Use the **Raycast tool** and select the inner circle of polygons on top of the cylinder. In the **Texture editor**, click **View ➡Show Selected** and choose **planar subprojection ➡best fit**, then scale it. The other images on the texture can be applied in similar ways, but be cautious to select the correct polygons.

// CHARACTERS AND ANIMATION

Even the advanced tools in *XSI* can be easily implemented.

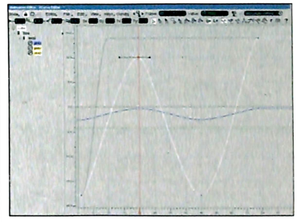
01 KEYFRAMING

Basic animation can be performed using the keyframing method, open **ANI_e1_Snack** scene and highlight the cube just below the plant's mouth. The animation steps are recorded in the timeline at the bottom of the screen: check to see if it's at **frame 1**. Make sure all **3 axis** are set in the **translate tool** and move the plant around. Press **[K]** to key in the animation and move the slider to **frame 10**. Repeat this and record the plant at a different position.



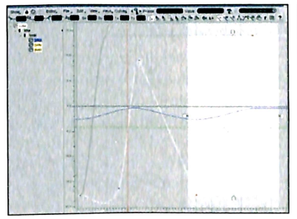
02 KEYFRAME CONTROL

Press **[Keyboard 0]** to bring up the **animation editor**, and in the new window, select **Editor ➡Dopesheet**. From here you can see all the keyframes that have been created, deleted and edited just like any other property in *XSI*. These are represented by the purple markers: select the one at **frame 10** and drag it to **frame 20**. Using this tool, you can see how animations can be manipulated; if the animation is getting complex, the editor and be panned and zoomed using the **[X]** key.



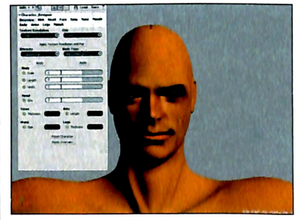
03 ANIMATION EDITOR

Remain in the **animation editor**, click **Editor ➡FCurve Editor**. Here the animation is separated by its position in space with respect to time. Along the **X axis**, a fairly linear transformation can be seen. Drag the **time line** to a position between frame **1** and **20** and create a new keyframe. The keyframes are show as the blue markers and can be dragged along both the time and x axis: this can be used to increase the acceleration of the plant.



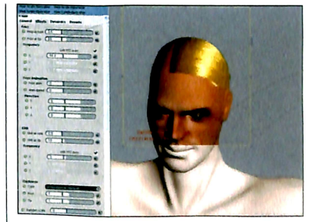
04 CURVE INTERPOLATIONS

Animation's curves can be changed to linear, constant and the standard spline interpolations from the curve button. The properties of the curve can be arbitrarily modified by keeping **[Q]** down and dragging over an area of the graph with the **right mouse button**. This can also be used to squash and stretch the curve as well as transforming a whole selection in space. You will also see the selection can be copied and pasted anywhere else on in the editor.



05 BIPED CREATION

Create a new scene then click **primitive ➡model ➡character** man. This automatically creates what's called a human biped. In the properties view, you will see a range of option sliders that can be altered to change facial expressions, muscle size or anything you want. A textured hair can be created within the window, but leave him bald for the time being. Careful with how much you change the model; you will find it is very easy to create a snarling goblin.

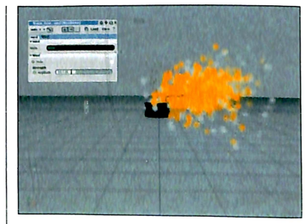


06 ADDING HAIR

Select the **biped** and turn on the **Raycast tool**, button **[U]**. Highlight a part of his head or face you wish to apply the hair to. Then press **[CTRL + 4]** and click **Create ➡Hair ➡ From selection**. From the windows there are a whole load of options that can be changed. From the **main menu**, click **Modify** and drag the mouse over the hair to make it longer. Now click **Modify ➡Comb ➡ Along X axis**: this may give him a Bobby Charlton haircut.

07 ALTERING HAIR

Hair colour can be changed using the **shader tool**. It allows you to change both the root and strands in the tip colour box. You may want to darken the **Specular value** so your character looks like he has actually had a wash this week. Individual hairs can be manipulated using the **[M]** – this is especially useful at the back of the head where the hairs tend to be too long. If you so desire, hairs can also be rotated, cut and clumped together from the **Modify menu**.



08 PARTICLES

Lastly we are going to take a quick look at **particles**. Create a news scene, hit **[4]** from the **Simulate Menu** and select **Create ➡Explosion ➡From Cylinder**. In the **3D view**, select **Realtime Render** and click the **play button**. Now click **Get ➡Force ➡ Wind** and place it next to the **cloud simulation**. Increase its amplitude and replay the scene. Similar effects work in the same way, for example cloth, fluids and various other particles.

09 COMPILING MODELS

At the time of writing, Valve still haven't released a model compiler to change the SMD files, which can be exported from *XSI* into the full blown *Half-Life 2* models. This process takes the SMD files along with a QC file, which co-ordinates various animations and details of a model, and outputs them into the MDL files that can be used in a game. These tools will be released before the game, along with other tools to view the models, so artists can get a head start on mods.

NETVIEW

Keeping in touch with the community is not such a bad thing.

Avid brings the 3D modelling community together from within *XSI*, by using *Netview*. It's a kind of supercharged web browser from where it's possible to download new content and resources produced by Softimage, Valve and the community base. If you feel like you've got a great new scene or model to show off, then this is the place to be: you can upload new creations for everyone to download.

Support Forums, a knowledge base and tutorials are also provided, so there is no excuse to get stuck with anything *XSI* related. It's also the place to activate the SMD exporter; you do have to sign up and provide a real email address, but you can rest assured it's spam free.

ON THE DVD

Learn more about *XSI EXP* with our video tutorials on the cover DVD

COMMAND & CONQUER GENERALS WORLD BUILDER

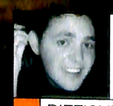
IT'S TIME TO ATTEMPT *COMMAND AND CONQUER WORLD BUILDER*, THE MAP DESIGNER THAT COMES WITH THE GAME.

Learn to use *C&C Generals World Builder* to create your own battlegrounds, then get them online and battle other cyber-commanders!

Real-time strategy battle game, *Command and Conquer Generals* burst onto computers early last year, with quite an impact. It had a lot to live up to with the previous legacy of *C&C* games, and certainly made its mark, updating the series by adding a three-dimensional element as well as a complete overhaul of the factions and storyline. It certainly satisfied loyal fans, and also managed to draw in a new fan-base. There is an absolutely huge community of modders to be found on the internet and much of that success is due in part to the developers releasing the map creator, *World Builder*, with the game.

World Builder is capable of building single, multiplayer and skirmish missions. For beginners, it is highly recommended to start small and create simple multiplayer maps, as single-player missions involve scripting various events which involves a certain level of complexity. Thankfully, if you're not a network or an online gamer, it is quite easy to convert a multiplayer map for use as a skirmish map against the computer AI. Initially it may all seem a little unwieldy, especially if your computer has not been updated for a while, and the controls at times can feel clumsy, but persevere with it and you will find yourself in a God-like state in no time. The developers are aware that some potential world builders may have inadequate machines and have given the user enough flexibility to modify how much geometry is drawn at one time, which should speed things up.

For this tutorial, we are going to build quite a simple skirmish map that could be used for online play. It will hopefully introduce the basic controls of the builder, the interface layout, and give you insight into the toolsets needed to create basic mission maps. Once completed you should have an arsenal of option in helping design and build simple terrains. While you will be creating the map from scratch, a version of how the finished map should work is found on the cover DVD. To play that, simply copy the **Gamemaker Tutorial** directory into your **My Documents/Command and Conquer Generals Data/maps** folder.



Neil Rennison is a Graphics Artist with experience in computer graphics based industries. He has skills in making games and recently provided the 3D artwork and track designs on two racing titles for PS2, Xbox and PC. His favourite games are usually historical based.

ON THE DISC

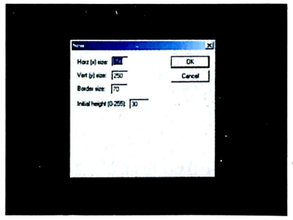
DIFFICULTY INTERMEDIATE

TIME TAKEN 2 HOURS

WHAT YOU NEED... A fully working version of Command and Conquer Generals.

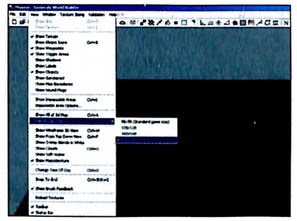
// CREATING YOUR MAP

A step-by-step guide to creating a *C&C Generals* mission map from scratch.



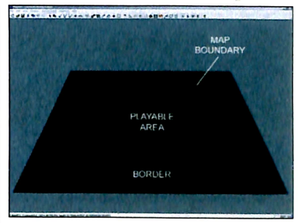
01 STARTING FROM SCRATCH

Load up **World Builder**. A default flat green map will appear in the Work window. We will want to create the map to certain specifications, so go to the **File menu** and select **New**. In this window, copy the values from the screenshot. **250** for the map size with a border of **70** are the two maximum recommended parameters for a 2 player skirmish map.Then **Click OK**.



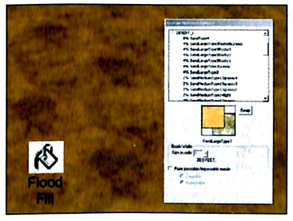
02 SPEEDY GONZALEZ

Take this opportunity to learn to move around the map. Depending on the speed of your computer you can go to the **View menu** and **Show All of 3D Map**, which will impact on performance. Alternatively, change the **Partial Map Size** so that only a small section is drawn. You will most likely find this annoying at first but trust us – you will get used to it!



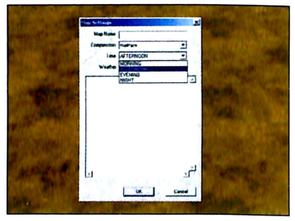
03 KNOW YOUR BOUNDARIES

If it is not toggled already, go to the **View menu** and turn on **Show Map Boundaries**. An orange box will appear on the map (hint: you might need to scroll around if the map is only partially showing). This box is exactly 250x250 tiles, which is equivalent of 250 feet, and acts as the playing area. The area outside is the border that we set to 70 earlier on.



04 ADDING SOME SAND

For this skirmish map, we want it to be in a desert setting. Using **Flood Fill** in the toolbar, the complete base texture can be changed from grass to sand. Notice that on selection, the **Object Properties** window changed to **Terrain Materials Options**. Open up the **DESERT_1** section and select **SandLargeType3**. Now you can flood fill the map with the new sand texture.

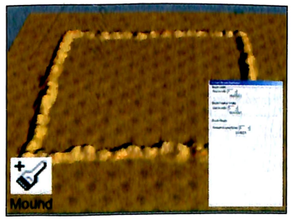


05 WHAT'S THE TIME?

World Builder enables the user to change the time of day dynamically. We want this map to be set in the afternoon, so to make sure it is, you must go to **Edit Map Settings** in the Edit menu, making sure **Time** is set to **AFTERNOON**. If you want to see the effects of a time change on your map, you can press **[CTRL + D]** at any time, which allows you to cycle through them.

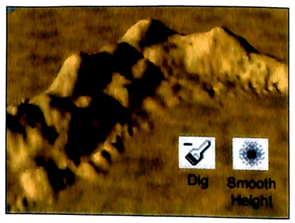
06 SAVING THE MAP

It is probably a good time to save this map so go to **Save As** in the **File menu**. Click on **User Maps**, enter the name you wish to call the mission and click **OK**. This will create a directory named after your mission name in **My Documents/Command and Conquer Generals Data/Maps**. Stored in this directory will be the **map file** and a **targa image file** of the map for use in-game.



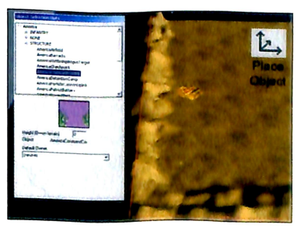
07 MOUNTAINOUS PERIMETER

To make the skirmish feel enclosed, we need to add a mountain range around the border of the map. This will give you a chance to practice using the Terrain modification tools. Select **Mound** from the toolbar. In the **Option box** set the **brush width** to **7**, **feather width** to **5** and **brush height** to **6**. Now following the map boundary, create a rough mountain range.



08 MOUNTAIN TWEAKING

Once the perimeter has been completed, go back and add more detail to various sections. By changing the values in the **Terrain Brush Options** and utilising the other similar tool, **Dig**, you can add finer detail such as gullies and smaller rock formations. You can also use **Smooth Height** in the tool bar, which will soften off any parts that you think look too lumpy.



09 PLANNING A BASE

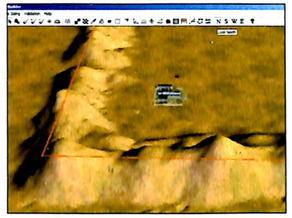
It is recommended that the average size for a base should be about 5x5 command centre objects. Click on **Place Objects** and in the options window that appears, open up the **America** section, followed by the **Structures** section: there should be all the American base buildings. Select **AmericaCommandCenter**. On moving the mouse over the map you will see a small command centre.

GETTING AROUND

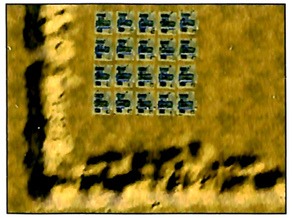
All you need to know to get up and running.

***World Builder* works pretty much the same as a conventional 3D art tool, in that you can pan, zoom and rotate around a fixed axis in the 3D view. Generally what you see in *World Builder* is pretty much how it will look in-game. A useful grid can be turned on and off, with distances measured in feet: one square equals 10 feet. The interface basically consists of the main 3D view, and an options window to change parameters, which changes depending on the selected tool. The toolbar at the top is made up of the most commonly used tools, with more tucked away in the menu system. To get around, hold down the right mouse button to pan across the terrain, and hold the middle button to rotate. If you haven't got one already, get yourself a wheeled mouse if you want to create some decent maps. The wheel enables you to zoom in and out with ease and is especially useful when navigating around terrain which is only partially drawn.**

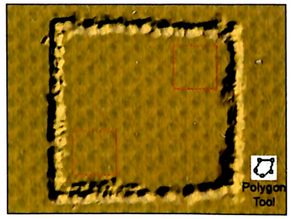
// BASE BUILDING
Laying out a template for a base helps give scale to the terrain.



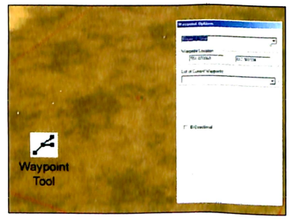
10 PLACING THE CENTRE
Click on the **Look North** button to re-orient the map correctly and move and zoom until you have the bottom-left section of the map on screen. Holding the **left mouse button** down, click around the corner of the map. Still holding the left mouse button rotate the building round so that it sits perpendicular to the corner of the map. Then **Click OK** in the next window.



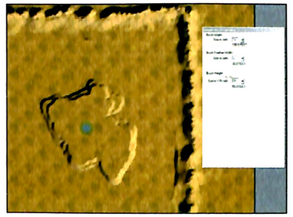
11 MEASURING UP
In the **View menu**, select **Show From Top Down View**. Now select the **command centre** and using **CTRL C** and **V**, **copy and paste** them so that you have a grid of buildings 5x5. Note that when pasted buildings will overlay other buildings. You can use **Select Duplicate Objects** in the **Edit menu** to find any rogue buildings that may have accidentally been mis-pasted.



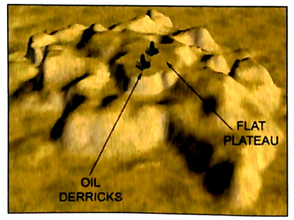
12 TEMPLATE BASES
Click the **Polygon Tool** button and draw a square around the buildings – called a trigger area. Drag it so that it sits in the top-right hand corner of map. Again, draw another polygon square around the buildings and then delete the buildings. We now have two base templates. It is always good practice to create these – but for future maps they do not always necessarily need to be square.



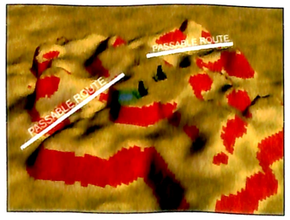
13 BASE WAYPOINTS
Select each **trigger area**, and for the bottom-left one, select **InnerPerimeter1** from the **Area Trigger Options** and set the other to **InnerPerimeter2**. This sets the two inner perimeter trigger areas for our two bases. Now click on **Waypoint Tool** and place a waypoint in the middle of each base, starting bottom-left. Name them **Player_1_Start** and **Player_2_Start** respectively.



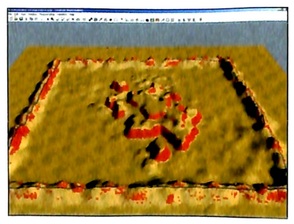
14 ADDING MORE TERRAIN
For this map we want a central terrain feature that two competing armies need to make their way across or around. As before, we need to start building up the land. A useful tool is the **Height Brush** which will raise up the land to whatever height you wish. When we created the file, we set the height to 30 – meaning that any value over that will be raised up.



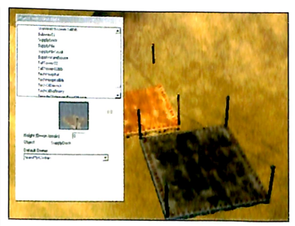
15 SCULPTING THE LAND
Using the various sculpting tools, you can start building up the land. The final intention is to place two neutral oil derricks on the top, which can be captured during the game to increase funds. With this in mind, you should create a flat plateau somewhere on the map. To help gauge the size of the area needed, place two **TechOilDerrick** objects from the **Civilian/Structure section**.



16 PASSABLE ROUTES
The two competing armies need to easily reach these objects, so we need to provide passable routes up both sides. Generally, any terrain above a 45-degree angle will become impassable. To view these areas, select **Show Impassable Areas**, found in the **View menu**. Impassable areas will now be shown in red. Using the tools, create two passable paths up to the plateau.



17 MORE TERRAIN DETAIL
Next go in and add more terrain detail to the surroundings, making sure it is all passable. This could be in the form of some vertical rock formations (notice the two above and below the central terrain lump), or any general terrain bumpiness. Try to keep the two base areas as flat as possible, as this allows the player to be able to build easily upon them.

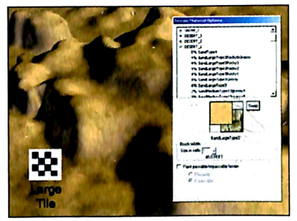


18 SUPPLY THE TROOPS
Make sure you have placed the two oil derricks on the plateau. Next, place another couple of objects which will be able to supply the two armies once they have built Chinook helicopters. Go to **Place Object**, and in the **Civilian section**, select the **SupplyDock** object and place it in the top-left hand corner of the map. Do this again, placing it in the bottom-right hand corner.

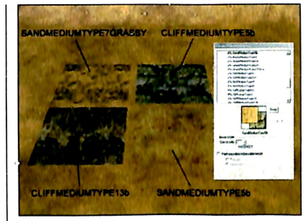
SPEEDING THINGS UP
World Builder running faster is a swift job.

Depending on the how fast your PC runs, you may need to work a little more conservatively. Generally, if you play *C&C Generals* and can only run it on a basic graphic configuration, then more than likely you are going to need a few work arounds to speed things up a little. One of the first things you can do is to change your screen resolution to 800x600 before loading World Builder, which you can do in your OS Display Properties. On loading up the software you may find the windows out of place, so in the Window menu select Reset Window Positions. The other major point to watch out for is how much of the terrain you draw. You can change this in the View menu, but be warned: drawing a full 3D map can bring your machine to a halt. Finally, if you still want a speed increase, check your Show toggles in the View menu. You can easily turn various object types on and off which is useful when you don't want to display certain things. Also make sure that clouds, soft water and the macrotexture are also turned off as they seriously impact display performance.

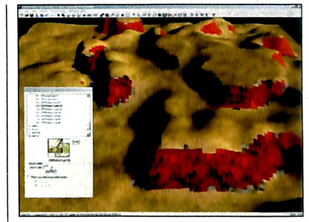
// GET YOUR PANTS OUT
Bring the terrain to life by adding environmental textures



19 BEGINNING TO TEXTURE
Before detail texturing, you must make a decision on how many more textures you would like on your map. Because of complex blending issues at a later stage, it is best to choose a small palette which can be used in variety of ways. Click on the **Large Tile** toolbar button to bring up the **Terrain Materials Options** window. Open up the **Desert_1** materials section.



20 CREATING A PALETTE
For this map we will add four more texture types. To help pick these, we can create a palette in the border area. Set the brush width of the **Large Tile tool** to **11** and paint the following four on to a border area: **SandMediumType5b**,**CliffMediumType13b**, **CliffMediumType5b**,**SandMediumType7Grassy**. Whenever you want you pick these in future, just use the **Eyedropper** tool.

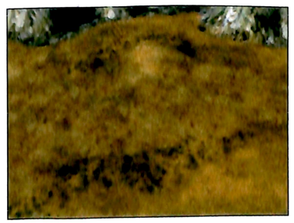


21 PAINTING THE IMPASSABLE
For gameplay issues we want to distinguish between passable and impassable terrain. For impassable, we will use the two cliff textures. Use the eyedropper tool, select **CliffMediumType5b**, then use the **Large Tile** tool and set the **brush size** to **3**. Turn on **Show Impassable Areas** and begin loosely painting the texture over any areas of red. You do not need to be too precise.

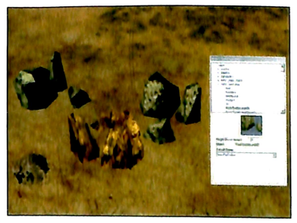
22 MAKING PASSABLE CLIFFS
Select the **CliffMediumType13b**, and now paint on any remaining areas where you want there to be a cliff texture. This texture will denote passable cliffs, which the player can work out. It is probably a good idea to leave the plateau sandy, along with the two passable routes up to it. This will let the player know visually areas that they definitely can move their forces around upon.

23 MAPPING CLIFFS
You will notice that on various cliff faces the texture mapping may seem a little messy. This can be easily remedied by choosing the **Map Cliff Textures** option in the **Texture Sizing** menu. On selecting it, point the cursor at the area of cliff, and it will re-map the texture to the surface in a cleaner way. Be careful not to over-use it or you may experience graphical glitches.

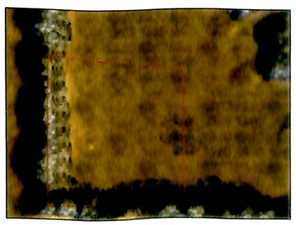
24 BLENDING TEXTURES
At the moment, all the textures have blocky edges and look nasty. Use the **Auto Edge Out** tool in the toolbar to sort these out. When clicking on a texture-mapped area, you will notice that the edges blur, and blend into the texture next to it. Use this over the terrain to smooth out all the edges. However, use with caution on areas where more than two textures blend together (see column on p.14).



25 MORE TERRAIN TEXTURING
Start texturing the rest of the map, remembering to add the cliff textures to the border mountain range. Use the other two textures: cracked sand and grassy sand, to add variation around the landscape; try to add these to areas where you previously added lumps and bumps. This will make it seem a little more natural. Remember to minimise multiple texture blending.



26 ADDING MAP PROPS
In the **Civilian section** of the **Object Selection Opts**, accessed by using the **Place Object** tool, you will find an assortment of props to add to the scene. Especially useful for this map are the small rock formations found in the **Misc_Natural** section, and the desert shrubs in the **Shrubbery** section. Place a few types of these around the map to add a touch of variety.



27 TRIGGER AREAS
In order to turn this map into a single-player Skirmish map; there are a few things you need to add. We have already added a couple of items already: the two inner perimeters, which we need to modify slightly. Select each corner of the **inner perimeter polygon** to match it to the screenshot above. Roughly modify the other perimeter to symmetrically match.

TO PASS OR NOT TO PASS
How to utilise passable and impassable terrain to aid gameplay.

As a general rule, as soon as the level loads up, the player should be able to determine areas, which they know that can move troops on and areas where they will be blocked. Defining rocky areas by using textures, or really steep areas as impassable are the most obvious candidates. The default for impassable height areas is 45 degrees, and can be modified in the Impassable Area Options found in the View menu. A word of warning however, if you change this it may look very odd if your tanks start driving up ridiculously steep cliffs! As well as modifying the geometry height, you can also force certain textures to be impassable or passable. When using the tiling tools put a tick in the Paint passable/ impassable terrain checkbox and choose your option. Another word of warning though. Be careful how you apply this as it is very easy to go mad. It is very frustrating for a player if their troops are suddenly stopped dead for no apparent reason!

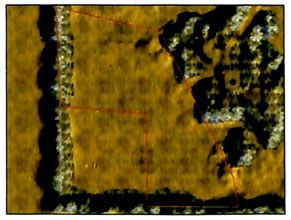
// MAKING A SKIRMISH

Adding the final touches so the map can be used for Skirmish battles.

MAP OPTIMISATION

Always good practice to keep an eye on how much you're adding.

As you are building maps, it is good practice to constantly re-evaluate how much you are putting into the world. Once you become good at using the *World Builder* tools, it is easy to create a monster of a level that runs slow even on the best machines. Firstly, start off with an efficient map size. For a two player multiplayer/ skirmish map you should not go over 250 x 250 tiles. As a maximum for any number of players, it's recommended you do not breach 400 x 400. Keep an eye on your object count, shown in the bottom-left hand corner of the main window. For a simple map, do not exceed 1800 objects. When texturing, keep down the amount of three-way blends which can be achieved by careful mapping. Use the Show 3-way Blends in White tool found in the View menu to see all the blends on the map. Try and stay under 300 total blends. Finally, design your map to minimise 'choke points' which can result when the two forces have lots of vehicles and troops cooped up in the same area, which will impact performance.

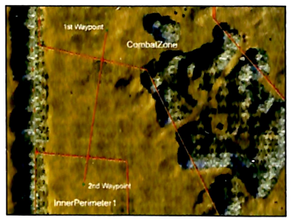


28 OUTER PERIMETER

The inner perimeter is used to alert the AI that the base is being invaded. When an enemy crosses this boundary, they will do all they can to stop the attack. An outer perimeter is used as a first stage of alert for the AI. To create the outer perimeter, you must create a polygon to match the image above. It needs to encompass the area just to the north and east of the base.

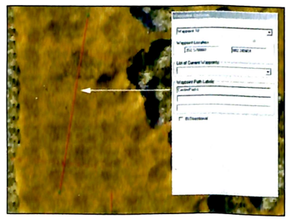
29 THE COMBAT ZONE

Do the same again symmetrically for the other base. In the **Area Trigger Options**, change the name of each to **OuterPerimeter**, matching the number with that of the inner perimeter. Finally, create another polygon that fills in the middle between the two outers. This area needs to be labelled **CombatZone** so that when entered, the AI knows that troops are on the move towards them.



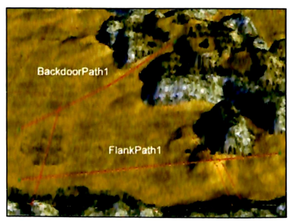
30 ENTRANCE WAYPOINTS

A major rule for base design is that they must each have three entrances. The map we have created is quite open so it will be easy to facilitate this. To show the entrances, we use waypoints. Select the **Waypoint Tool** and click and drag a **waypoint path** from the just inside the **InnerPerimeter1**, at the top, to just inside **CombatZone**.



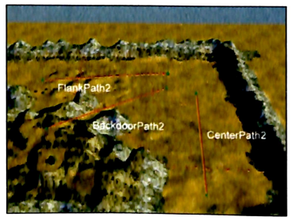
31 THE FRONT DOOR

Select one of the two waypoints that make up the path, and in the **Waypoint Optio** window that appears, type **CenterPath1** into the first **Waypoint Path Labels** box. This first path will be the path the AI is most likely to use in an easy skirmish battle. An important rule to remember, when designing your own maps, is that a main obvious entrance is available to the base.



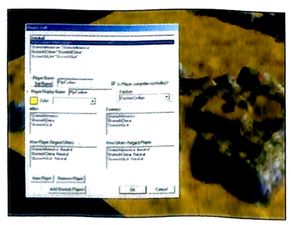
32 THE BACK DOORS

Create two new **waypoint paths** using a similar method as before by placing one point within the **inner perimeter** and another in the **combat zone**. The first needs to go at the bottom right entrance to the base and needs to be labelled **FlankPath1**, and the second needs to be placed on the passable route through the middle rock formation and labelled **BackdoorPath1**.



33 TEAM 2 ENTRANCES

Do exactly the same for **team 2**. Make the centre path situated at the bottom of the base and the flank path situated at the top-left. Keep the backdoor the same. Depending on difficulty settings within the game, the AI will now choose their plan of attack. You will probably find that on harder settings, the enemy will more likely use the backdoor, or a combination with the flank.



34 ADD SKIRMISH PLAYERS

The final thing to do is to activate the map so that it is able to receive the three types of faction in a skirmish battle. In the **Edit menu**, select **Edit Player List**. You will already see a player named **PlyrCivilian**, which controls the starting neutral objects such as the derricks. Click on **Add Skirmish Players** and then **OK**. Now **save** the file.

35 TESTING IT OUT!

Load up *C&C Generals* and select **Solo Play**, then **Skirmish**. In the next screen click on **Select Maps**. A list of the in-game skirmish maps will appear. Click on **Unofficial Maps** and you should see your saved map. You will notice the **targa image** that is created in the **Save directory** is used as the preview of the mission map. Give it a play!

36 COMMAND AND CONQUER!

Hopefully the game will play just fine! This map can also be used as a multiplayer map to play online. We tested the map on unsuspecting participants and had some really good games. You'll find the key is to gain as much of the supplies on the map as soon as possible. It may be fun to add a few more stockpiles to add longevity to the game.

"An imposing, almighty hulk of pure gaming power, madly straining at the leash."
- PC Gamer UK, September 2003

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UT2004 PREPARING FOR THE ONSLAUGHT

ONSLAUGHT IS UNREAL TOURNAMENT'S MOST EXCITING MODE OF PLAY, WITH MANY NEW ASPECTS TO TAKE ADVANTAGE OF. RICHARD COBBETT CLAMBERS INTO HIS MANTA.

PART FOUR

Richard Cobbett's putting his effort into *Onslaught* this month – the most popular mode in *UT 2004*. This adds many extra elements to work with, from sprawling terrain based maps to precisely balancing vehicles and weapons. Master it and *UT* editing will hold no fears.

DIFFICULTY ADVANCED

TIME TAKEN 5 HOURS

WHAT YOU NEED...
UT 2004 -UnrealEd provided on the CDs/DVD.

Deathmatch is by far the easiest type of map to create. A few rooms, a few corridors, the odd weapon here and there, bish-bash-bosh, on with the fragging. Barring a few incidents, holdups, difficulties and troubles – no problem. Easy.

Capture The Flag is rather more difficult, relying on you being able to precisely balance two bases, giving each sufficient entry-points and sniping posts to ensure that your players can attack and defend without feeling that the situation is unfair – you'll have seen this already, simply from the fact that most (if not all) CTF maps are symmetrical.

Onslaught takes this to the next level. No longer do you have two bases to deal with, but six or so – each of which has to be balanced to give its owner a tactical advantage, without giving them the power to steamroller everything in sight. How do you work against one team grabbing that vital middle node with the tank and raining destruction down on the other nodes? How long will it take a player without a Manta or Scorpion to clamber up that hill to the point where they can fight back and begin retaking nodes – you'll have seen from the demo, if not the full game, that it's possible for one team to be pushed all the way into their base and still turn things around. That takes design skill, and is the hallmark of a satisfying map. Nobody likes losing, but simply being able to walk all over your enemy doesn't hold its appeal for long either.

A good *Onslaught* map is a juggling act, balancing the vehicles and weapons to keep the action flying without your players flying off into a rage. They'll want their toys, of course, but you have to make the final decision about which they'll get – from the Redeemer and its ability to take out a node with one shot, down to the levelling power of a team wielding AVRiLs and an incoming Goliath tank. What's more, it's simpler than you might expect....

VEHICULAR MANSLAUGHTER

A quick rundown of the combat cars that make Chitty-Chitty-Bang-Bang look like a clapped out Skoda.

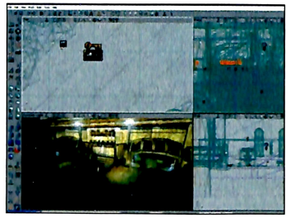
LEVIATHAN
A horrible, horrible vehicle capable of levelling whole bases on its own. These are best left out of all but the largest maps, as their homing guns and turrets quickly destroy anything that gets in the way.

GOLIATH
The Tank isn't indestructible, but can be guaranteed to flatten any foot soldier who dares get in its way. The turret kills with a single hit, and its mounted machine gun isn't too shabby either.

HELLBENDER
Nowhere near as much fun as the other vehicles, the Hellbender is often left floundering like an expensive taxi. Its horn is unlikely to have other players quaking in their boots, and it can be tough to find someone willing to man its turret.

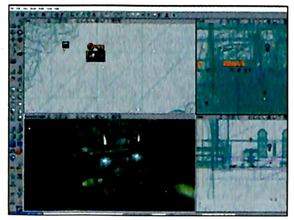
// BEGINNING YOUR ONSLAUGHT

Fight them on the beaches and the sands, the lava planets and the spaceports.



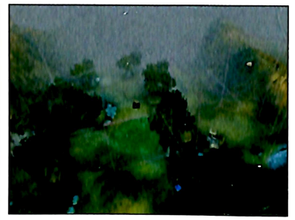
01 OFF/ONSLAUGHT

It's surprisingly easy to prepare a map for *Onslaught* mode. While you have to create the map itself, the game specific elements are coded to be as easy to use as possible – you just have to drag and drop each *Onslaught* specific element into its place, and they will then typically handle all the configuration settings themselves.



02 FROM TEMPLATE

For the sake of this tutorial, we're going to be editing the map **ONS-DAWN**, albeit resaved as **ONS-DAWN2** so that we don't encounter any problems trying to play the original online. This is a decently sized map, with full pathing and base design already done for us, making it easy to drop straight into the new content.



03 BATTLE FIELDS

First of all, you'll notice that this, like the other official *UT2004* maps, is a terrain based map. There's absolutely no reason why this has to be the case – **ONS-ICARUS** is an excellent example of a conventional BSP map kitted out for *Onslaught* play. The main advantage of terrains is one of scale – especially when vehicles are involved.

04 RADAR BLUES

The first *Onslaught* specific thing to deal with is the **Radar Map**. To use this, your geometry absolutely has to be centered in the middle of Unreal space – 0,0,0. Creating the map itself is a complicated process, as sadly *Unreal* won't generate it for you, but this will put you in good stead if you do decide to add one at a later stage.

05 TRACK MEET

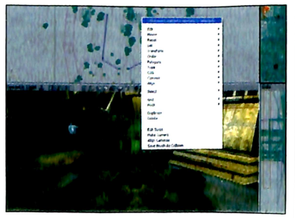
The first key difference between *Onslaught* and other *Unreal* level types is the focus on vehicles. You don't have to include them, but they help – not just for fighting in, but getting each side to its combat zones as fast as possible. Unfortunately, this presents a number of serious problems even to the experienced *Unreal* designer.

06 BOUNCY BOUNCY

The Manta is especially troublesome. Once a player has parked themself in this (and let's not forget, two other players can jump onto the fans), there is practically nowhere that they won't be able to speed to – this one's broken all the way through to Arctic Stronghold! You have to create Blocking volumes to keep this freedom at bay.

07 HIGHWAY TO HAVEN

Related to this, it's important to make sure that your vehicles can navigate the map properly, smoothing out any rough patches of ground capable of stopping a tank dead, providing enough cover to give a Scorpion a chance to tie up a tank with its snot-a-rang and the air-space required for the Raptor to feel like a proper aircraft.



08 RED VS. BLUE

In actual game terms however, the principle addition in *Onslaught* comes with the **Power Nodes**. To create each side's base, you simply need to carve out an area and give each a **Core**. *UnrealEd* has two of these – **ONSPowerCoreBlue** and **ONSPowerCoreRed**. Incase you were wondering, one is blue, the other red.

09 SNIPING ****S

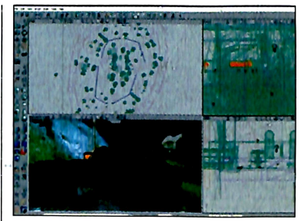
When placing these, make sure to put them in a secluded part of the map. Maps where the other team can snipe the Core from orbit are nowhere near as much fun as when the Core is the site of a pitched battle. It's a good idea to put walls, gun-turrets and other blockers to make the other team fight right down to the bang.

// BEGINNING YOUR ONSLAUGHT

we've started so we'll finish.

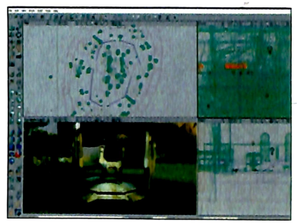
10 GARAGE MUSIC

Every home base needs a selection of vehicles. To do this, simply drop a **VehicleFactory** into position – there's one for each type, and their names are self-explanatory – for instance, **ONSTankFactory** providing a Goliath as and when the power node is activated. Move this into position near the **Node** or **Core**.



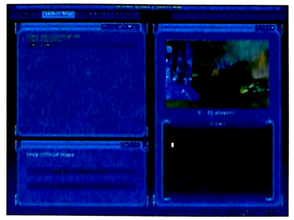
11 DRIVE BY

One useful thing about *Onslaught* is that you don't have to worry about tying vehicles to specific nodes. *Unreal* checks their positions and simply assigns them to whichever is closest, be it controlled by the Blues or by the Reds. This automatically controls the spawning and locking of new fighting craft.



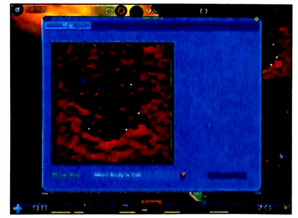
12 POWER STATION

Power Nodes are handled in exactly the same way – simply drop them onto the map, and let *Unreal* worry about who owns them. The object you require for this is **ONSPowerNodeNeutral**. Don't simply scatter these at random – make sure they're in good battling points. The Tower in the demo map **ONS-TORLAN** is a great example.



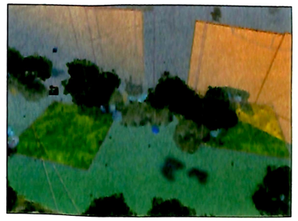
13 A NEW DAWN

You'll notice that we haven't actually hooked these up yet – there's no neat powerline stretching across the map. This is because *Onslaught* tries to leave this as open-ended as possible, giving people the chance to rewire the map without having to learn *UnrealEd*. Run the game and select the map from the list.



14 NETWORK NEWS

You'll now have the opportunity to create your default link networks. Ideally, you should hook up the nodes into a mesh structure, rather than simply power lines to ensure that an enemy can attempt to seize the other team's hard-won ground from multiple angles (rather than just getting hammered on the main road.)



15 NODE BLEED

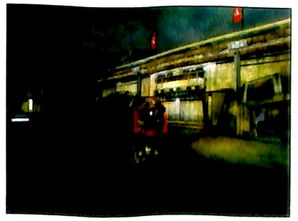
You don't have to link up every node. If one is taken out, it simply won't appear in the game (and therefore its vehicles and player start points won't be activated). Of course, any other base decoration that you've built will still be there, so it's a good idea to restrict this to destroyed bases and general open plains to avoid any confusion.

16 STAR DOT STAR

One button should stick out – Export To *UnrealEd*. This is how you go about creating one link setup as the default. Press this button, quit the game and then return to the editor. Next, press **[CTRL-V]** to paste your settings into the level. To confirm this, you'll need to manually run the command **ucc exportcache: *.***

17 PAWN SHOT

Time to play the map. We've reshuffled the nodes, replaced the tanks with Mantas and set up additional gun turret posts **ONSManualGunPawn**, to assist with defence. The only thing to do now is to double check our AI PathNodes (the originals, plus new variants for Air and Road) to make sure any bots we bring into play will be able to move.



18 FLAWLESS VICTORY

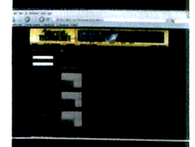
And that's it! One *Onslaught* map, signed, sealed and delivered. As you can see, it's rather more difficult to set up than a plain *Deathmatch* game, but it's got the chance of being a considerably more exciting experience for your players. Of course, if you really want a design challenge, Assault mode still beckons...

IN SEARCH OF OTHER HELP

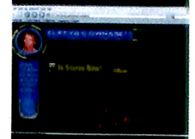
Want to continue learning *UnrealEd*? This series is over, but there are other places you can quench your design thirst.

UNREAL DEVELOPER NETWORK
The UDN is Epic's official resource for *Unreal* based development, and can be found at udn.epicgames.com. It has a huge collection of tutorials on everything from content creation to UnrealScript coding.

3D BUZZ
Looking to see *UnrealEd* in action? The 3D Buzz tutorials at www.3dbuzz.com attempt to talk you through it in video form, making it easy to see what you need to click on and how it all fits together.



OWNAGE
CliffyB's own site at www.planetunreal.com/cliffyb/ is an excellent way of browsing the current cream of the *UT* crop, finding the best levels and other content to offer inspiration if your ideas start running dry.



farcry

IMPLEMENTING SINGLE-PLAYER LIGHTING, AI AND INTERIORS.

Last month we looked at the basics of making an outdoor multiplayer map for *Far Cry*, which was initially easy, but became progressively more difficult. This month, we're going to look at single-player and indoor mapping.

The first thing we'd recommend you do, is to go to **www.farcry.ubi.com/goodies.php** (or look on our disc) and download the final version of the Sandbox Users manual. The manual includes all the information you'll need to make intermediate *Far Cry* levels, and several useful appendices listing all the variable properties of each object, and function. And, if you get stuck, the best way to find out how things work, is to open some of Crytek's own levels (from the full game) and have a play with them. (Remember: back them up first!)

Dan Griliopoulos made his first *Doom* map about ten years ago and, thankfully, deleted it about ten minutes later. Despite forays into *Starcraft* and *Warcraft III* scripting, Dan is defiantly an amateur showing that anyone can use the Cry Engine Sandbox.

DIFFICULTY HARD

TIME TAKEN 3 HOURS

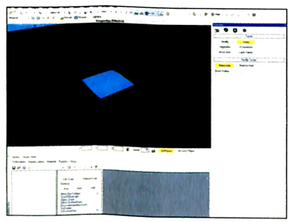
WHAT YOU NEED...
Full version of *Far Cry* with Sandbox.

// DESIGNING AN INDOOR MAP

Get mapping.

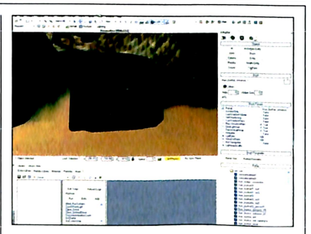
01 MAP AS LAST MONTH

As per last month, generate your terrain, and carpet the landscape with vegetation (rather than carpet). Make sure you have at least one large hill on the map so you can build a villain's base inside it. If you're planning to make a building complex instead, leave a large flat space for this. Create your terrain levels, and generate the terrain.



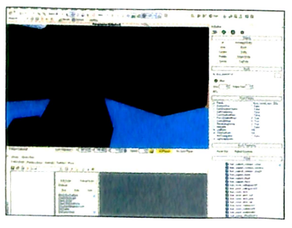
02 HOLE PUNCH

You need to make an entryway to your underground section. Select the **Create Hole** tool, located under the **Terrain → Holes**, and select your area of landscape. Try and keep the size down; holes are extremely risky – they remove the visibility and collision of polygons (on the squared out section of the map), meaning players can fall in the water beneath.



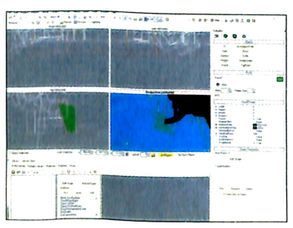
03 ENTRANCING EXITS

To make internal areas, you'll want to switch to the four-window view, making sure the windows are set to Front, Top, Left and Perspective. Now zoom in until the area you're working on is centred in all the screens – you'll likely have to turn off **AI/Physics**. Select entrance decoration from either the coastal objects or the ruined fort palettes.



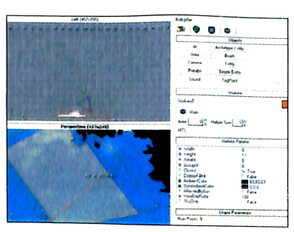
04 CLIMBING THE WALLS

Walls, floors and ceilings can be placed just like any other objects. There's a good selection in the **glm/ww2_industr_set1** palette. The clone function **[Ctrl + C]** is handy here, as is the ability to freeze the objects when you've finished working on them. Doors can try patience but most can be constructed from pieces or found in the industrial directories.



05 VIS AREAS AND PORTALS

The horror of creating indoor areas comes with the advent of **Vis Areas**. These define areas of visibility, as well as occluding areas from being viewed from the outside. Portals allow you to see between two Vis Areas. To create a **Vis Area**, place it as a shape object, making sure it is beneath the floor and covering the max. height of your building.



06 PORTALS

Any object that has its centre inside the **Vis Area** will not display outside the **Vis Area**, and vice-versa. **Portal placement** lets players see between **Vis Areas**; select and place a **Portal** between two **Vis Areas**. A **Portal** should not touch the **Vis Area** edges, but cross both **Vis Areas**. Objects that cross **Vis Areas** must have their centres inside the portal.

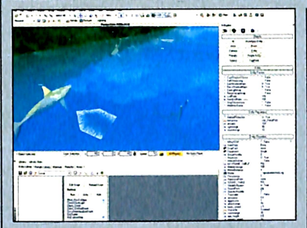
LIGHT YOUR MAP

Set and see your sights.

The easiest way to light interiors is with Static lights. These are pre-calculated, to reduce the processing time. Only non-dynamic objects should have static light on them, and dynamic objects will not receive light maps by default. As Static lights are calculated before the game, alterations to the map don't alter their position and effect, so if a rock is moved, the light will fall incorrectly. Until, that is, you Generate Lightmaps from the Tools bar. To increase light-map quality, reduce the Rexel size and increase Texture resolution, and click All. However, Static lights don't look as realistic as Dynamic lights. Dynamic lights are more flexible; you can alter colour, light style (strobe, etc.), shake, model, light type, and light-shader. Dynamic lights can't light certain areas, but Radiosity lights can fill gaps. Usually, Dynamic lights go on the ceiling and radiosity on the floor. To place a Radiosity light, place a Dynamic Light object, and change its Fake Radiosity setting to True; Light Type to 1; Use in Real Time to False; Low Diffuse Multiplier to 0.1 and Cast Light Map to True. The light from Dynamic lights won't pass through portals, so rooms can look strange. To create fake dynamic lights, select the Dynamic Light object and tick the FakeLight box. When placed, it will cast a shader, but won't create light that reacts with the other light in the room.

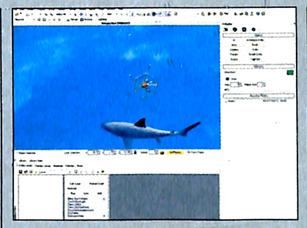
// MAPS AND MERCENARIES

Adding animals and drag and drop mercs



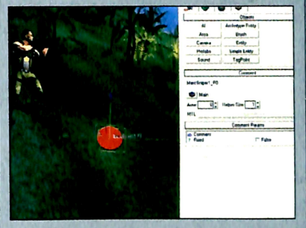
07 JUMPING THE SHARK

The simplest AI constructs are animals. All AI models are accessed through the AI pane of the **Entities pane**. To place the shark, drag it into the scene – aim for the fin to be just poking out of the water. Scroll the **RollUp Bar** and set its AI behaviour to **Job_investigate**. If you now boot up the game, running in to the water will lead to the shark pursuing you. However, it can apparently travel on land, which is why sharks normally have a patrol path instead.



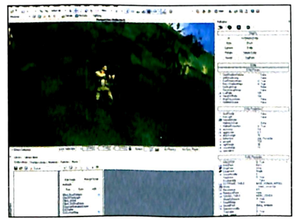
08 SET AI CHAIN PROPERLY

It's wise not to alter any of the Shark's characteristics – these have been carefully set and fiddling can produce Sharks with inappropriate pathfinding characteristics. To make the Shark behave properly, set its AI behaviour to **Job_PatrolPath**, and change to the **RollUpBar**. Select several **AIAnchors** from the AI pane (not in the Objects menu), and change their property to **INVESTIGATE_HERE**. Set the AI behaviour property of the AI to **Job_Investigate**.



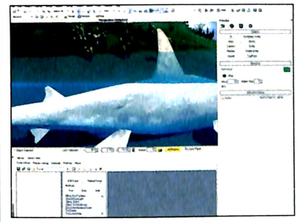
09 ANCHOR IT

Instead of using Anchor points, you can gain more control by using **Tag Points** from the **TagPoint** list in the **Objects window**. Each tag point must follow the naming convention **name_P0, name_P1** and so on, where name is the name of the AI entity following the path. You've then got to tell the AI entity to navigate these waypoints – **Job_PatrolCircle, Job_PatrolLinear** and **Job_PatrolNode** are all passable examples, each producing a different style of navigation.



10 MERCENARIES

To place a mercenary, simply drag and drop them from the AI pane of the **Entities pane**. This will provide you with fairly standard grunts. However, if you open the **Database view**, you can access more specialised types of pre-equipped merc, that are also drag and drop. You'll notice there are several different types of mercenary, each of which fulfils certain roles in a group. The leader determines the reaction of the group, whether it's to seek defensive positions or to charge at the enemy.



11 GROUPING AI

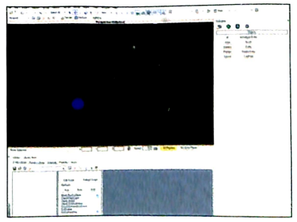
AI units behave very differently when put into groups. And AI groups are created differently from other groups, they are assigned the same **Group ID** through their entity **properties pane**. When you create a group, they act as a team; if you assign a leader AI to a Merc, he directs the group and will find defensive positions, or direct the Mercs into appropriate attacking positions; taking him down will make the whole group act individually.

12 GROUP LEADERS

To place a group leader, select one from the **Archetype Entity** list of the **Objects window** in the **RollUpBar**, or drag and drop one from the **Data Base** window. Unless otherwise specified, the AI group will not react until it spots an enemy, at which point the leader takes over and individuals follow respective roles. To create a point for a defensive leader to protect, place an **AI anchor** on the map, and set its property to **AI_ANCHOR_PROTECT_THIS_POINT**.

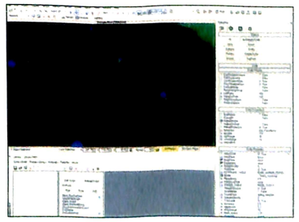
13 REFEREE'S AN ANCHOR

A more interesting method of getting your mercenaries to move about, compared to the rigid and complex pathing technique described above, is to set anchor points. Place an **AI Anchor** on the map near the unit, and click the **AI Action** button in the **AIAnchor Params**. Select **AIAnchor_Smoke** from the list, generate the **AI triangulation** (which you should do after every step.) When you click the **AI/Physics** button, your merc will slope off for a sly fag.



14 HUMAN BEHAVIOUR

You can use the tag points to create a patrol group, where the leader forms a group that wanders from one tag point to another, creates a set of points as before, and gives the entity the AI behaviour property of **Job_FormPatrolCircle**,**Job_FormPatrolLinear**, or **Job_FormPatrolNode**. These cause the entity to act as an attractor to similar types. Set up several followers with the **AI Behaviour** set-up as **Job_Observe** and they will follow him around until they encounter an enemy.



15 BOA RESTRICTOR

Are you finding that your units are snaking all over the place? Do you want them to follow a specific path with robotic precision? Then you need proper pathing, rather than just the wandering routes that Anchors provide. In order to do this, select **AIPath list** from the **AI list** in the **Objects window**. Then you need to click on the map where the path should start, and draw a line straight across the map, with a double-click to finish off.

AI COVER

How to map much more quickly

To get your AI units to make effective use of cover, you have to ensure all objects that can provide them with cover have the Hideable Objects tick-box checked, otherwise they won't be recognised as providing cover, and your AI entities won't use them as such. Most objects default to the correct setting.

AI VEHICLES

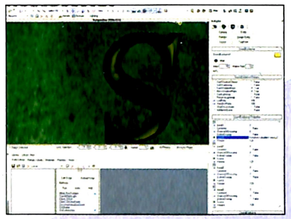
Paving a path.

Land vehicles, like AI entities, can be given paths to follow, or attack instructions but unlike land vehicles, they can't follow them. Unless, that is, you place a couple of Mercs by the vehicle, and give them the same group number as the vehicle when they will attempt to drive the vehicle. For example, if you place seven Mercs next to a Humvee, six will get in and the seventh will loiter. To activate the vehicle, simply place a trigger (Proximity or Area) and have the vehicle set off by that trigger. If you click the On Enter event in the Trigger object window, select your vehicle and right-click the default trigger (in brackets), and then you can swiftly change the vehicle's behaviour.

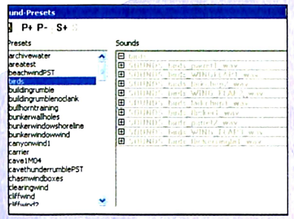
CUT SCENES
Movie magic at your fingertips for all you animatic-maniacs

***Far Cry*'s included cut-scene editor is such a different prospect to the rest of the program, that we don't have space to cover it here – although we might cover it in a future issue of the magazine in more depth. It's laid out like a traditional animation software suite, specifically like *3dStudio Max*, but using the models and environments from your *Far Cry* level as the actors and scene. Having placed a camera, you assign a node to each object that will move (including the camera), and then alter its location according to the position you want it to occupy at particular times, and alter the animations, sounds, facial expressions and events to make the movement convincing. For more information on this, check out the Sandbox Manual.**

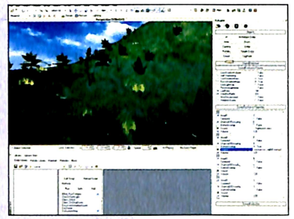
// SPAWN POINTS
Setting the scene for the start of your stage.



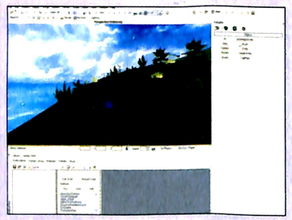
16 HEARING THINGS
Navigate to the **Entity Objects** list and select the **Sound directory**. Select a **Sound Spot** and place it near the player start point on your map. Set the size of the spot (OuterRadius) so that the player will hear the sound as he approaches it and continue hearing it for a goodly while. To stop it appearing abruptly, set the **InnerRadius** to a lower value than the outer, so the sound fades in over the distance between the inner and outer radius.



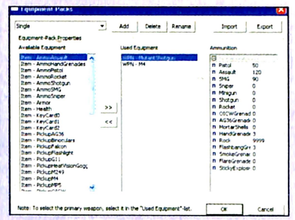
17 SOUND PRESETS
Sound Spots are useful, but overall presets can be helpful too. Navigate to the **Sound menu**, and check out the **Sound Presets**. You can add new presets with the **P+ and P- icons**; each preset can consist of several sounds, each with its own parameters. Chance determines how likely a sound is to play out of 1000 (setting this to 1000 will play the track constantly.) You can limit how often the track is played with the **NoOverlap** and **Timeout** settings.



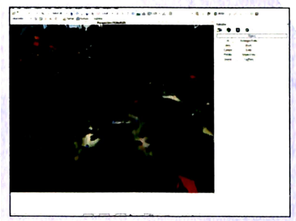
18 INCREASE THE VOLUME
To implement presets, you need to build their triggers into an area. You can build them into any of three areas from the Area list of the **RollUpBar**; **Shape**, **AreaBox**, and **AreaSphere**; **Shape** is the easiest to use, but has no vertical parameters. Then place a **RandomAmbientSoundPreset** object from the **Sound** folder of the **Entity Objects** list. Select **shape**, click **Pick** under **Target Entities** box, and select the **Sound Preset object** you placed. (Vis Areas interfere with sound presets.)



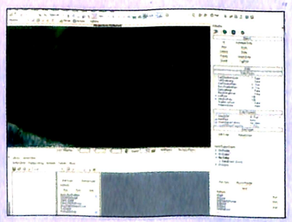
19 START POINT
To place your initial spawn point, select a **Respawn object** from the **TagPoint** list in the **Objects tab** of the **RollUpBar**, and place it on the map. Name it **Respawn1**; subsequent respawns should be named in sequence, although it doesn't matter if there are gaps in the sequence. Each subsequent **respawn** will be associated with an **objective** or a **save**, and the player will respawn at the save point most recently activated, assuming you've set up your scripts correctly.



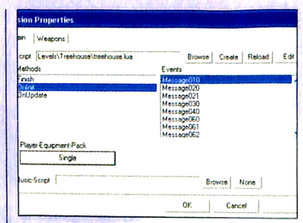
20 SINGLEPLAYER RESPAWNS
To ensure the player has a fair chance, we'd better give him some starting weapons. Create an **Equipment Pack** the same way as for multiplayer, go into the **Mission Properties** window and pick the pack from the box. The highlighted weapon will be the one the player starts holding. On top of starting weapons, the player needs to know what weapons he's allowed to use in this level. Click on the *Weapons tab*, and add each weapon that will be used in this mission.



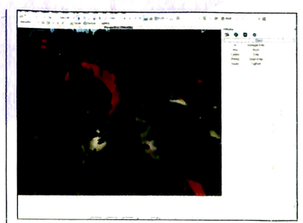
21 SAVE POINTS
To save the game, you'll need a **GameEvent** object, and you need to trigger this with an event. You can use any kind of object to trigger this, from the opening of a door to the death of a mercenary, but normally you'll trigger this with an area trigger that covers the point where you have placed your **objective radar tag point** (from last month.) Create a **Shape Area** (from the **Objects list**) to act as a trigger for the save game.



22 TRIGGER THE SAVE GAME
Now take a **GameEvent Entity** from the **Other folder**, and place it on the map. Give it an **ID property** of 0 (or any other unique ID). From the trigger directory, pick an **AreaTrigger** object and place it on the map. Select your area and **Pick the AreaTrigger**. Select the **AreaTrigger**, and pick the **GameSave** object. Now ensure that the **TriggerOnce** parameter is set to **true**; this will stop repeated saves at that location.



23 WRITE MISSION SCRIPTS
Again, the mission scripting tools are too complicated to go into depth here; see page 94 of the Sandbox Editor manual. To create a new mission script, select the main tab in the **Mission Properties** window and click **Create**. The script should be stored in the **level's root folder** and have the same name as the level, e.g. Monkeybay.lua. Scripting is basic, '**Game:SendMessage (StartLevel levelname)**' will move to next level.



24 SET UP MISSION EVENTS
Once your mission has a script, you'll need to set up the events for that script. You'll need a list of objectives, messages to the player, and victory conditions for the player, and then a change to the next level. Once this is all set-up, you'll want to test it. As last month, **Export to engine**, load up the full game, and call up the console. Type **map mapname** and hit **[Enter]** – your level should load up.

The savage D-day Assault mod will feature a multitude of buildings, characters and weapons.

PART TWO

SAVAGE
3DS MAX BUILDING CREATION AND UV MAPPING TUTORIAL
THE BEST MP TEAM GAME IS EVEN BETTER WITH WW2 AUTHENTICITY.

Savage is a complex game with a fabulous game engine. The silverback engine enables high polygon counts to be displayed in-game while still maintaining system stability. *Savage* utilises the creative powers of Discreet's *3ds max* software to unleash a fabulous modding opportunity upon its gaming community. A *3ds max* exporter plug-in will be made available to the community to facilitate character, prop and building design within *Savage*. The D-day Assault mod focuses on WWII, and *Savage* provides an ideal medium to mix RTS and FPS in this unique era in time. D-day Assault will attempt to fuse RTS and FPS in a WWII environment while trying to maintain the gameplay and spawning of *Savage*. This tutorial guides you through the creative options being designed by the *Savage* D-day Assault team.

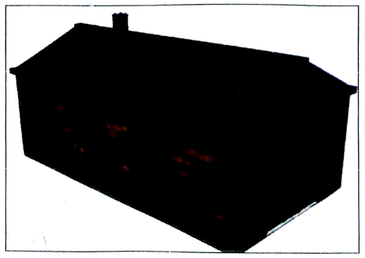
The *Savage* D-day Assault team consists of: Patrick Van Barneveld – 3D Modeller and assistant producer, Serguie Kalentchouck - 3D Modeller, William Todd Ward – 3D Modeller, Ron Chow – sound FX, Bill Munk – Animator, Brian Knudsen - Coder.

The team will attempt to provide a balance between realism and fun gameplay for this highly sought after era of combat. All your favourites from WWII will be available.

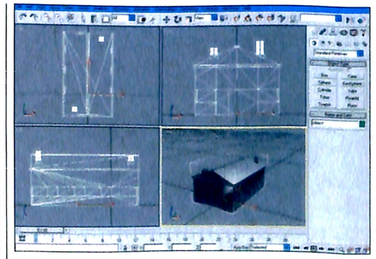
Patrick van Barneveld is the assistant producer of *Savage D-day Assault* and an employee of Digital Jesters, the European distributor of *Savage*. He has nine years of experience in 3D animation, CAD and 2D artwork. He has worked on many games projects.

DIFFICULTY HARD
TIME TAKEN 7 HOURS
WHAT YOU NEED... *3ds max 5, Adobe Photoshop 7, Texporter.*

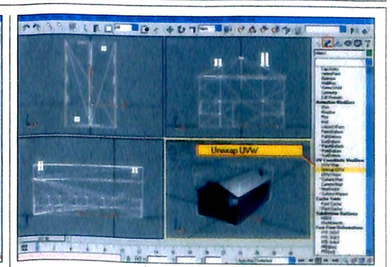
// BUILDING BLOCKS
Garrison your maps with a new building.



01 LET US BEGIN
Concept sketch and watercolour a perceived barracks to replace the garrison building in *Savage D-day Assault*. This will be the place you can spawn from in the game and purchase new units and weapon systems. A simple wooden structure was chosen and modelled after historical references. Transforming this concept into a 3D structure is a question of boxes, bevels and mirrors.



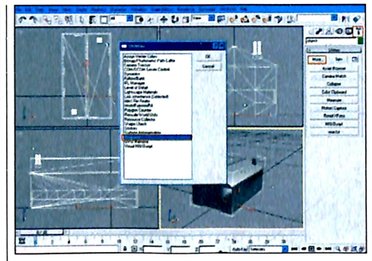
02 LET THERE BE LIGHT
Now we have this rather grey looking 3D building; you must satisfy yourself that this is the look that you want, to avoid later grief due to re-texturing and re-mapping. Use the camera in the perspective view to observe the building, both from the view of the FPS player and the RTS commander; remember *Savage* has two unique views to all models.



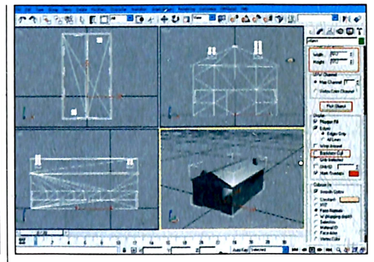
03 STEPS TOWARDS UV MAPPING
Select the **model**, go to the **modifier tab** and **scroll down** to **UV coordinate modifiers** and **select Unwrap UVW**. This will enable you to unwrap the UV map to fully texture the building, and obtain a realistic looking structure in-game. Textures are great for compensating low poly models. The more polys you drop, the more total engine polys are available.

// TEXTPORTER AND TEXTURING
Beam up some colour, Mr Spot.

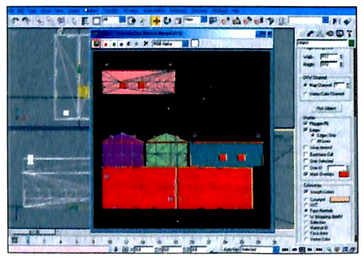
04 WE HAVE A UV MAP
Press the **edit button** to bring up the map; for buildings that are box-like, box mapping is most effective. You can space the separate parts, separate sides or even enlarge a certain part to give greater detail. Just play with the vertices and maximise your map surface result. Once you are happy, **exit this screen** and **return to the main editor screen**. The UV map has now been applied to the model, but the modeller now needs a template to paint in.



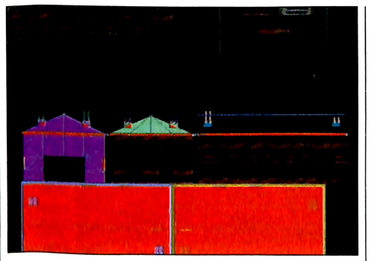
05 TEXPORTER; BINARY GOLD
Texporter is a fabulous plug-in that's a true must for any game texture skinner. Check it out at **www.cuneytozdas.com/software/#texporter**. It's located under the **Utilities** tab under **More**. The interface is intuitive and simple to use. The liberties **Texporter offers** makes it an ideal tool for anyone wishing to produce high quality game model textures. The next step will focus on appropriate settings for *Savage* textures.



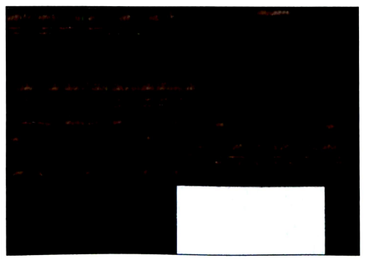
06 TEXPORTER SETTINGS FOR SAVAGE
Texture sizes of 512 x 512 pixels are preferred for building textures, though 256x256 or 128x128 can also be used. Ensure the setting **backface cull** is switched off to avoid disappointments when the map generates wrongly at times. Press **pick object** and await a pop-up window that will show a nice UV map just like the one we modified before but now on the texture scale we need. This is the moment of truth for the game modeller.



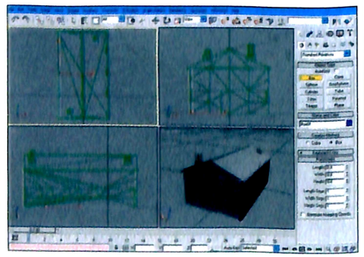
07 THE MAP TEMPLATE
And there you have it; we now see a map template appear which we can save to a multitude of formats for use in any paint programme. We can now save it to a known location and fire up our paint programme; we highly recommend *Adobe Photoshop*, but costs may deter home users. *JASC Paint Shop Pro* offers a good alternative to those home users. Now it's time to consult our database of reference materials and colour pictures.



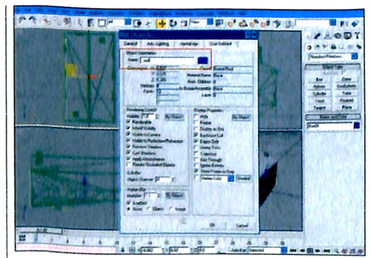
08 THE DREADED TEXTURE HOURS
As you can see here, we have three source images: the wood, the window and an air outlet which was layered into the texture template. Now the tedious game of copy, paste, fuse, layer and alignment begins. Make sure you determine what look you want and save some of your progress layers in separate files for retrieval if needed later. No one makes a texture without backtracking once or twice – it's trickier than making the whole model.



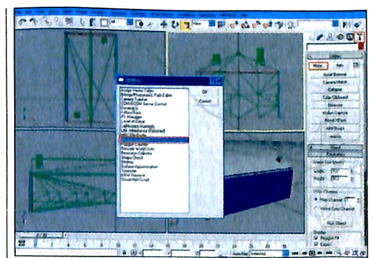
09 THE FINAL TEXTURE
Once all the layers cover the lines of the template, our texture is done. The final texture is complete and covers all model vertices and polygons. The important step now is to incorporate it into the *3ds max* model by adding it to the object's material as a bitmap in the material editor. Only than will we see the final result of our texturing efforts. Be sure to check all alignments and look for any errors that may show up.



10 COLLISION SURFACES
A simple render showed us that the texture was fine; now we move on to creating **collision surfaces**. Here we use simple boxes to mark the boundaries of our structure. Simple objects are more than sufficient for the box-shaped object. **Collision surfaces** can intersect and overlap, and herein lies the beauty of the silverback engine. Once we have sufficient surfaces set up, we move on to the next step of ensuring the exporter plug-in picks up the surfaces.

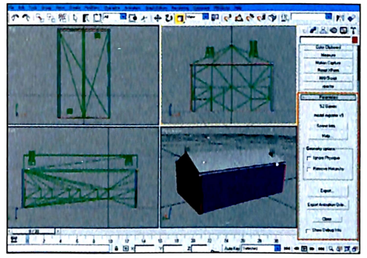


11 SETTING THE SIMPLE OBJECTS
All objects are labelled **_surf**-name to ensure the exporter sees them as **collision surfaces**. These surfaces will show in-game as non passable objects. Playing with **collision surfaces** can create a nice building which is accessible through various doors and contains different levels. So use these simple boxes well to shape your buildings and maximise the in-game potential. Once all this has been finalised we can start to export the building from *3ds max* into *Savage*.

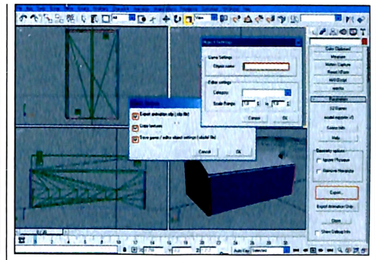


12 THE EXPORTER PLUG-IN
The process of converting your model to a file that *Savage* can read is fairly straightforward. First, find the relevant plug-in – it's located under the **Utilities tab** under **More after installation**. This exporter is a little gem as it exports all possible game models you might build with *3ds max*, not just animated characters, but also static props and, as is the case here, building models. It's a nifty little programme, for sure.

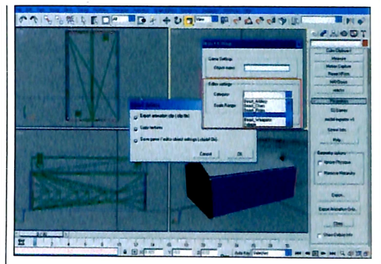
// THE END IS NIGH
The final export draws closer…



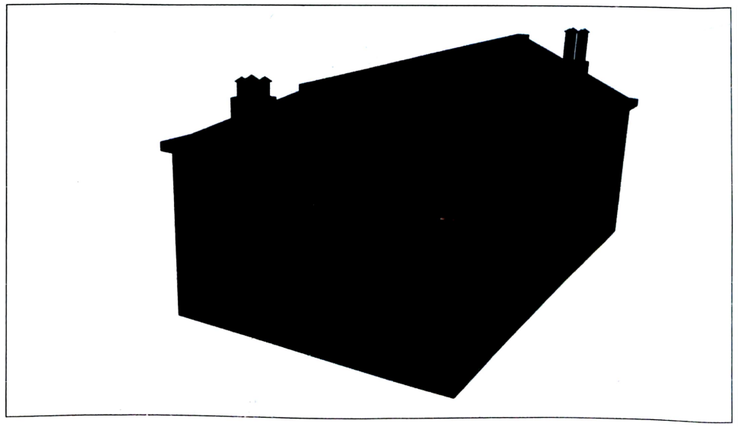
13 THE EXPORTER PLUG-IN INTERFACE
Take some time to have a look around the functional buttons; it will save you time in the long run. The **export button** will be the most important, and of the most use to you, but you will also soon discover that **scene info** and **export animation only** are of great use too. Unfortunately, the help function is rather limited.



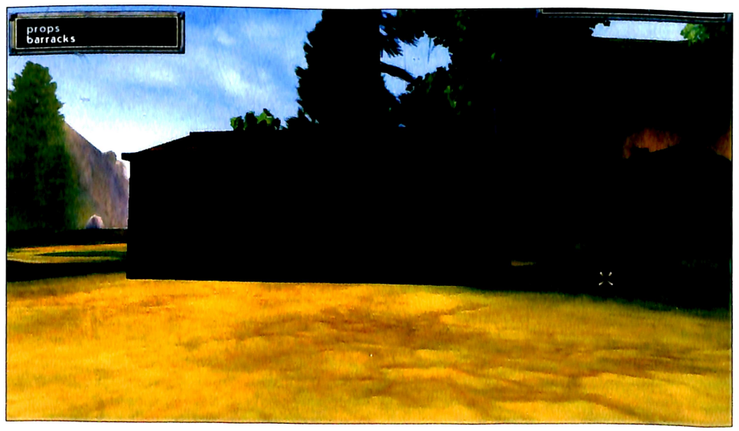
14 EXPORTER PLUG-IN EXPORT FUNCT
Here we select to export all features of our model. The textures, animation and physical model will now be exported. The **exporter plug-in** will do the rest so no need to further worry about these features at this point in our export cycle. You need to pick a suitable name to ensure it's distinguishable from the core *Savage* structures.



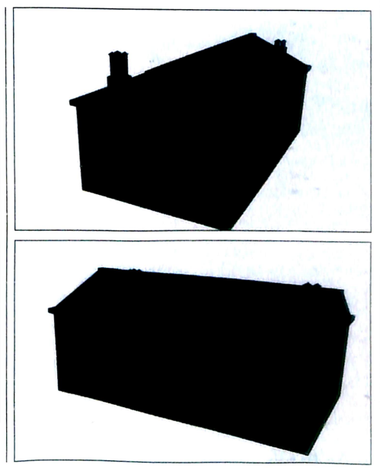
15 THE DROP DOWN MENU
Once you have selected a name and wish to commence exporting, the plug-in offers you a wide choice of exports. Will it be a beast structure? An NPC prop? Or will the humans gain a new structure? All models can be exported similarly from props to NPCs, from buildings to characters. The plug-in is truly versatile and easy to use.



16 PRODUCT RENDERED IN *3DSMAX*.



17 FINAL BUILDING IN GAME.



This image shows a snapshot of the game running. You can see the main ship shooting at the enemies, and the enemies getting dangerously close to the player ship.

PART THREE

Games Factory Pro

MAKE A GAME WITHOUT LEARNING C++? MAKE IT IN LESS THAN AN HOUR WITH THE GAMES FACTORY!

Welcome to the third of our tutorials on creating a game with *The Games Factory*. This month we are completing the game we started last month: *Nano Wars*, a clone of the old side scrolling classic *Defender*, only with much better graphics.

We have assumed that you understand the basics of *The Games Factory*, that is: how to create a condition, how to create an action and how to enter an expression. If this is all new to you, we recommend you check out the tutorial we published two months ago in *PCFormat* before attempting to follow this one. If you haven't got the magazine, don't worry, you can download the article from **www.clickteam.com/PCF160.zip**.

CLICK TEAM

Clickteam makes various other game/application tools. *Multimedia Fusion* allows you to make great 2D games; want to try 3D and scripting? Try Jamagic! It also has a range of installers. Log on and visit www.clickteam.com for more information.

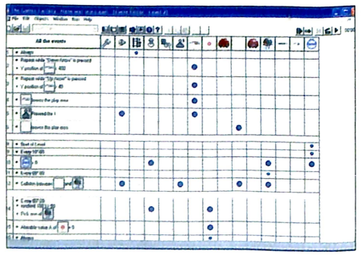
DIFFICULTY EASY

TIME TAKEN 1 HOUR

WHAT YOU NEED...
A copy of *Games Factory Pro*.

// ALIENS HAVE LANDED

create and destroy in 3 easy steps.



01 STARTING UP

Start *The Games Factory*, and load the game that you entered last month. In the **Storyboard editor**, click on the **1 button** to open the **Level editor**. Then select the **Nano-Wars library** in the **library combo box**. Once this is done, click on the **Event editor** button to reach the event editor. The display shows the game as you left it last month.

- Start of Frame
  - (Creation surgeon) : Set Counter to 7
- Every 10"-00
  - (Creation surgeon) : Set Counter to 6
- (Creation surgeon) > 0
  - : Create (surgeon) at (263,452)
  - (surgeon) : Set X position to Random(1920)
  - (Creation surgeon) : Subtract 1 from Counter
- Every 05"-00
  - (surgeon) : Look at (-3,2) from (fighter)

02 CREATING THE ALIENS

Last month we made the ship shoot bullets. We now have to create the aliens. We are going to use the counter we dropped for this purpose: when the counter is greater than zero, we create an alien ship that we position randomly in the playfield and subtract one to the counter. Every 10 seconds we reset the counter to 6.

- Collision between (laser) and (surgeon)
  - (surgeon) : Destroy
  - (Player 1) : Add 200 to Score
  - (laser) : Destroy
  - : Play sample boom1

03 DESTROYING THE ALIENS

When the player's bullet collides with an alien, the alien is then destroyed. This can be done very simply in one event, starting with **collision detection**. Please note, however, that we play a sound: you will easily find the sounds on your *PCFormat* CDROM in *The Games Factory folder*.

// SCORES AND SPORES

Alien ships, events and spaceship collisions.

- Every 00"-20
- Random(100) < 90
- Pick one of (surgeon)
  - Create (spore) at (-1,2) from (surgeon)
  - (spore) : Set Alterable Value A to 100
- Alterable Value A of (spore) = 0
  - (spore) : Destroy
- Always
  - (spore) : Look at (0,0) from (fighter)
  - (spore) : Sub 1 to Alterable Value A
- Collision between (spore) and (laser)
  - (laser) : Destroy
  - (spore) : Destroy
  - (Player 1) : Add 100 to Score

04 THE SPORES

Aliens shoot Spores. They only live for a couple of seconds, and actively look for the player. The first event: pick one of the Alien ships, and create a Spore close to it. It then sets its Alterable value to 100. The second event detects when the Alterable value of the Spore reaches zero, and then destroys the Spore. The third event directs the Spore towards the player, and subtracts one to the Spore's internal counter. The final event detects the collision between Spore and laser.

- Every 01"-00
- Random(100) >= 90
  - Create (mutant_alien) at (239,453)
  - (mutant_alien) : Set X position to Random(1920)
- (mutant_alien) leaves the play area on the top
  - Create (alien) at (1,2) from (mutant_alien)
  - (mutant_alien) : Destroy
- Collision between (laser) and (mutant_alien)
  - (mutant_alien) : Destroy
  - (laser) : Destroy
  - (Player 1) : Add 500 to Score
  - : Play sample boom1

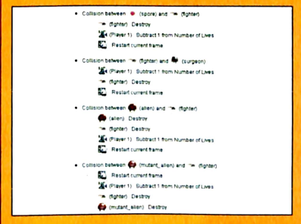
05 THE MUTANT ALIENS

Alien ships mutate when they reach the top of the screen, and transform into really aggressive ships. The next series of events animates those aliens. The first event creates an alien at a random position on the playfield. Its movement will make it go towards the top of the screen. The second event detects when the alien reaches the top, and when it does, creates a new alien in place of the first. The last condition detects when the player's laser destroys the original alien.

- Collision between (laser) and (alien)
  - (alien) : Destroy
  - (laser) : Destroy
  - (Player 1) : Add 1000 to Score
  - : Play sample boom1
- Always
  - (alien) : Look at (0,0) from (fighter)

06 MORE MUTANT ALIENS

We haven't finished with the mutant aliens, yet. Infact, we still need to detect the collision between the mutant alien and the player's laser, in order for us to successfully destroy the alien. This is done by the first event of this step. The second event makes sure that the alien actively looks for the player's ship by constantly making the alien look in the ship's direction.



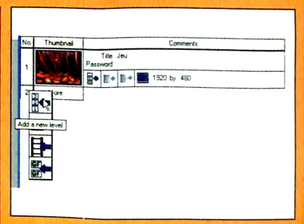
07 SOME COLLISIONS

We have entered events to detect collisions with the laser, but no events to detect collisions with the ship. Each time an enemy collides with the player's ship, we must destroy Alien and ship, subtract one to the number of lives of the player, and restart the frame. The events here are self-explanatory: detecting the collision with each enemy.

- Always
  - (interface_fighter) : Set X position to X(" — (interface7") + (X(" (fighter7") - 960) / 7

08 THE LITTLE FIGHTER

If you inspect the playfield, you can easily see that it contains a radar zone at the top, and we have dropped there a little version of our player's ship, called **Interface_Fighter**. In this step we are going to animate this ship. This is done simply by constantly setting its position to a fraction of the position of the main fighter ship.



09 DETECTING END OF GAME

When the number of lives reaches zero, the game must end. In our case, we will be going to the next frame, the high score table. Click on the **Storyboard icon** to open the **Storyboard editor**. Then click on **2** in the **main window**, and add a new level to the list. Click on the **2** button in front of the **new level** to open the **Level editor**.

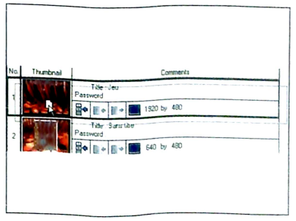
10 HIGH SCORE PAGE

If you have not done it already, open the **Nano wars** library, and inspect the objects to the left of the window. Find the **Highscore** object, and drop it on the frame. It should automatically centre itself. Now click on the **Create new object** button in the toolbar, and select the **Highscore** object. Drop it in the reserved location in the level. In the setup dialog, choose the font type and colour.

- Upon pressing "Space bar"
  - : Restart the application

11 THE HIGHSCORE PAGE

Once the **Highscore** object is set up, click on the **Event Editor** button to open it up, and key in the above event. Go back to the **Storyboard Editor** by clicking on its icon in the toolbar. As before, create a new level: **number 3**. Now click on the white area of the new level and hold down the mouse button, and drag the **new level** over **level 1**. Release the mouse: you have inserted a level at position 1.



12 A TITLE PAGE

The highscore object allows you to pre-configure the look of your scores tables. Firstly you can configure the total number of names on the board. You can also specify the length of name and put in default scores by clicking on the **scores** button. Once the high score object it set up, click on the **Event editor**, and enter the event: **Upon Pressing the spacebar - Rest the application**.

CLICKTEAM TOOLS

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THE END!

You game is complete. You can enhance it by adding music during the title page, or during the game itself and the hi-score game. Why not add new enemies with different behaviour patterns? The only limit is your imagination!

THE SIMS

PART THREE

The talented Dr. Frankenstein

WE DARE YOU TO EXPERIENCE THE ULTIMATE GOD-RUSH OF CREATING AND EDITING BODY MESHES.

Picture the scene. It's a bright spring day, and the citizens of Studio Town are flocking downtown to witness The Event of the season. Of course, everybody who is anybody is there. Bulbs are flashing; Miss Crumplebottom is screaming her wrinkled ass off and you can easily locate a few obsessed fans beside the garbage cans, carrying two dozen black roses. The Annual Simmie Awards? Not for another two months! No, this is the opening of Dr. Jawbreaker's office.

Dr. Jawbreaker is the Messiah of plastic surgery. This scalpel-wielding magician can give any Sim Jennifer's rear, Angelina's lips or Pamela's assets, without the anxiety and pain of recovery. As far as Joe Somebody is concerned, he is a God among Sims. Hold it! That was supposed to be your title. This Dr. Jawbreaker needs to be put in his place. There's only room for one God in this town and he won't be named after a candy! One method of regaining your Sims' adulation is to beat Dr. Jawbreaker at his own game. Show them who the genuine God is by conjuring new body shapes. This tutorial will provide a step-by-step guide on the ultimate God-like experience of body meshing.

Riane is the former webmaster and creator for Accents, http://simaccents.com. She is currently enjoying early Simming retirement in Manila.

ON THE DISC

DIFFICULTY INTERMEDIATE

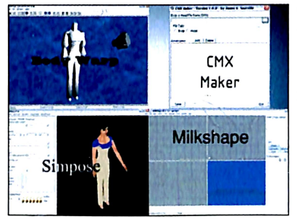
TIME TAKEN 3 HOURS

WHAT YOU NEED...

- Milkshape
- Body Warp
- CMX Maker
- Simpose
- Sim Show

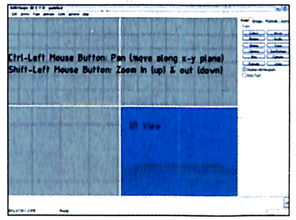
// PART I: BASIC BODY MESH COMBINATION

We will be playing Dr. Frank by welding body meshes together – hunch-backed assistants optional.



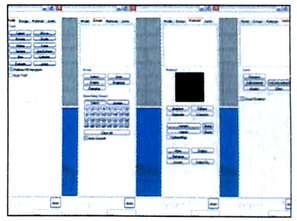
01 MESHING TOOLBOX

Milkshape **www.milkshape3d.com** is the handiest tool in the box. This program lets you edit, convert, or create meshes. If you want to change a mesh to fat or skinny, *Body warp* **www.thesimsworkshop.com** will suffice. After creating a mesh, you can view it in *Simpose* **www.simpose.com**. This program helps you test your new mesh for intersecting sections and distortion. Then you can make a CMX for the mesh using the *CMX Maker* **www.simwardrobe.com**.



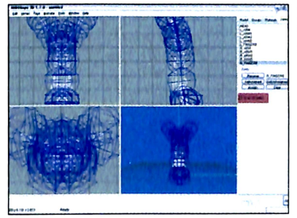
02 AROUND MILKSHAPE

When you open *Milkshape*, you get four windows. Each gives a simultaneous preview of the mesh from different angles – top/bottom, side, front/back, and isometric. When editing, you can right click on a window and select **Maximise** for more detail. If you want to zoom in on a part of the mesh, press **Shift ➠ Left Click** and move your mouse up. Move down to zoom out. For moving along the x-y plane (pan), you can press **Ctrl ➠ Left** Click and move your mouse around.



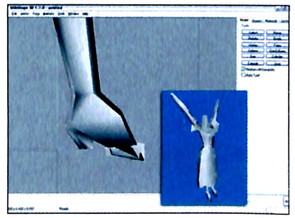
03 MILKSHAPE TABS

On the right side, you will notice a control window containing the commands you need to create or edit the mesh. The **Model tab** opens a command window for 3D editing or creating. The **Groups tab** can help keep your meshes organised. You can assign textures to your mesh when you select the **Materials tab** and the joints for the mesh can be assigned and viewed from the **Joints tab**. There's an Animation bar at the bottom, but for Sim Meshing, you won't need that.



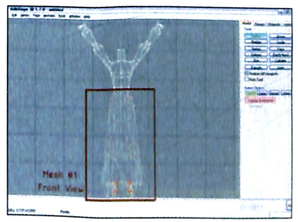
04 IMPORTING THE MESH

To change the viewpoint, **Right Click** a window and select **Projection**. The first four commands in the **Right Click** window tell you how the view is shaded. We'll be making a mesh with puffy sleeves, slightly flared trousers and strappy, wedge sandals. Let's start with a mesh from **Making Magic** that has the required upper body, but with a useless, knee-length skirt on the bottom part. To import a mesh, go to **File ➠ Import ➠ The Sims**, select the mesh file and press **Enter**.



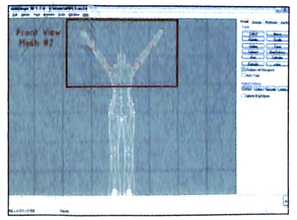
05 MESH DISTORTION

Looking at the imported mesh, you may notice a number of blue lines around it. To keep insanity at bay, go to the **Joints tab** and deselect the **Show Skeleton box** (red highlight). Without the lines, you'll see that the mesh seems to be worshipping a sun god, with its toes bent at an extremely painful angle. This distortion makes it more difficult to edit the shoulders and feet. Altering the shoulders or toes may give your Sim a hunched, squashed-feet appearance.



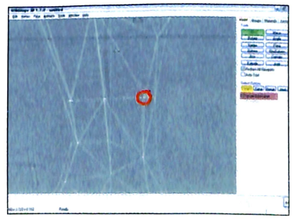
06 MESH 1

Maximise the front view window and select the **Wireframe** shading. Go to the **Model tab** and press the **Select** (blue highlight) button. On the **Select Options**, click on **Vertex** (green highlight) and **deselect Ignore Backface** (pink highlight). **Select** the **bottom portion of the body** (red box) and press **Delete**. Selected vertices are coloured red, while unselected vertices are white. After deleting, go to the **Groups tab**, select the mesh in the window and press **Select ➠ Hide**.



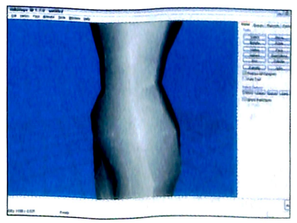
07 MESH 2

Import a mesh with slightly flared trousers (step four) and repeat step six. This time, **delete the top portion** of the mesh (red box) and leave the bottom half as it is. After deleting the top bit, go back to the **Groups tab** and select the first mesh you made. Now click the **Hide button**. Go to the **Model tab** and deselect the **Select button**. Now zoom in to the waist area. You'll need to attach the waist of the first mesh to the second mesh for a seamless look.



08 SNAP & WELD

Click the **Select button** (green highlight). Make sure **Vertex** (yellow highlight) is selected and the **Ignore Backface Box** is checked (red highlight). Select two vertices from each mesh that correspond with each other (red circle). Press **Ctrl ➠ N** to snap them together and **Ctrl ➠ W** to weld them. Welding two vertices reduces the number of vertices in your mesh. Fewer vertices means faster game loading. Go to the opposite view of your mesh and **Select**, **Snap** and **Weld** the vertices.



09 MESH HOLES

To check for mistakes, open the 3D, smooth-shaded view. If you find black areas or distorted portions, press **Ctrl ➠ Z** to undo previous commands and repeat step eight. The black areas are mesh holes that the game translates as transparent. Locating corresponding vertices from two meshes takes a bit of patience and practice. Select the **Ignore Backface Box**, and you will only be able to select vertices in front of the Sim (if you are at front view) to reduce confusion.

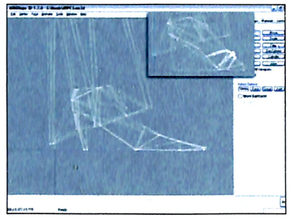
THE PABLO PICASSO SYNDROME

Why do your Sims look like a Picasso painting?

When you view your new mesh in *Simpose*, it looks dreadful and twisted. This occurs when you assign a vertex to the wrong joint. The game recognises the vertices by the joints they are associated with. The joints of the mesh are squeezed into conforming to the game's standard skeleton. If the left arm were assigned to the right leg joint, the vertices on the left arm would be forced, by the game's standard skeleton, to occupy the right leg. This results in a distorted body because the upper arm is still attached to the left shoulder. You won't see this in *Milkshape* because *Milkshape* doesn't care where you assign the vertices. It recognises vertices on their placement, not joint assignment. Next time this happens, make sure you assign the vertex to the nearest joint. Your Sims will worship you for it.

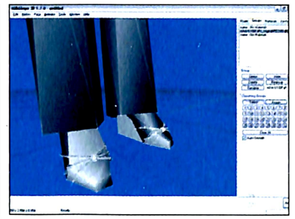
// PART II: THE FINISHING TOUCH

A short guide on how to make the new mesh work in your game.



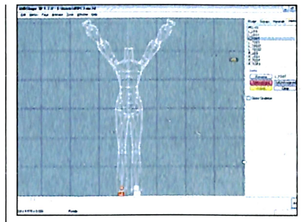
10 THE SHOES

The pointy shoes don't seem to go with the outfit. We need to make them strappy instead. If you are wondering why the toes aren't folded in, the toes are assigned to the foot joint. Once the toes are assigned to the foot joint, you can easily fix the feet without a squashed-foot look, in the game. **Select** the **vertices** on the shoes you want removed and press **Delete**. Import the new, strappy sandals and align the corresponding ankle vertices.



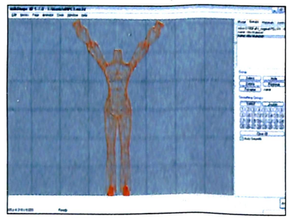
11 CHANGING SHOES

Repeat steps eight and nine. Take a deep breath and get ready for another round of Select vertices (**cursor**), Snap together (**Ctrl ➡N**) and Weld (**Ctrl ➡W**). Once you've welded their ankles, check for holes and distortions. Make sure you don't snap the left ankle with the right. You don't want *Sims* with distorted, hobbled feet, screaming for mercy every time they try to walk. Once the shoes are to your liking, check the **Ignore Backface** box and go to the **Joints** tab.



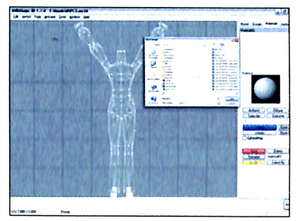
12 VERIFYING JOINTS

Without joints, the game would not know how to animate the character. If one vertex is not assigned to a joint, you will get an error message when you try exporting your character. In order to check the joints, go to the **Joints tab**. Select a joint in the joint window, and click **SelAssigned** (red highlight). All the vertices assigned to this joint will be selected. Since we used pre-existing game meshes, we won't have any problem with any vertices not fixed to a joint.



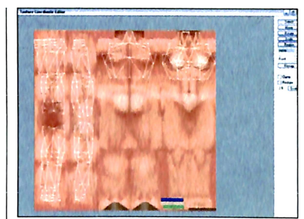
13 GROUP SELECTION

Since joints are not much of a problem, we'll be checking on the mapping for the mesh. We need to select all the meshes first. Go to the **Groups tab** and click on the first mesh in the groups window, then press **Select**. Do the same for the other meshes until all the meshes are selected (vertices and lines are coloured red). You can also select the whole mesh by using the **Select** button (Model tab). Use **Face** instead of Vertex for the **Select Options**.



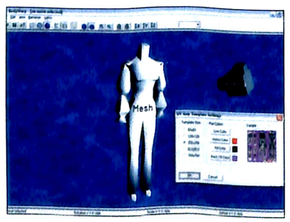
14 ASSIGNING TEXTURES

To import a texture, under the **Materials tab**, select **New** (red highlight) and click the first **none** button (purple highlight). An **Open Image** window will pop up. Find a nude texture so you can check which part of the mesh goes with which part of the body. Once you import the texture, click the **Assign** button (yellow highlight). Make sure all the groups are selected when you assign a texture. To view the mesh with the texture, use the 3D view with textured shading.



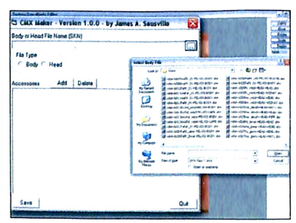
15 MAPPING WINDOW

While the groups are still selected, click **Ctrl ➡T** to open the **Texture Coordinate Editor** – the window where you dictate how the mesh will be mapped out on a texture. You can select a group in the drop down menu and check how it is mapped. If there are vertices outside the texture, click the **Select** button, select the wayward vertex, click the **Move** button and nudge the little vertex back inside the texture. You don't need to save the mapping. Just close the **dialog box**.



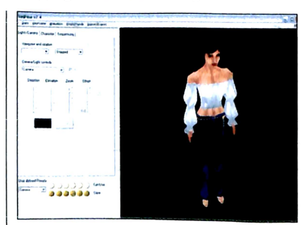
16 BODY WARP

Save the mesh in MS3D format, for future editing, and export the mesh. **File ➡ Export ➡The Sims SKN**. For the **UV Map**, you can use *Body Warp*. Open the Mesh in *Body Warp* **File ➡Load Skin (Mesh) ➡File**. Once you've loaded the mesh, you can proceed to making the **UV Map**. **File ➡Save (UV Map Template)**. In the **dialog box**, select the size of the **UV Map** (bodies use 256x256 pixels) and click **OK**. Now you need to create a **CMX** (see the next stage...).



17 CMX MAKER

You have your **mesh** and **UV Map**. The last thing you need is a **CMX**. Your game will not recognise the mesh unless a CMX points it out. Open the **CMX Maker** and click on the **ellipse** (...) button. A **Select Body File** dialog box will appear. Find your **new body mesh** and click **Open**. If you want to add accessories, just click on the **Add button**. Once you're all set, click **Save**. Wait! Before you load the mesh and CMX, you need to test them first.



18 PRE-GAME TESTING

After loading the mesh in *Simpose*, try using the body parts sliders under the **Character tab**. Move the body parts around to check for distortions and mesh interference. Do portions of the mesh poke through other parts of the mesh? If everything is clear, you can test if the mesh and CMX will crash your game in *Sim Show*. After the *Sim Show* test, you can import the mesh and CMX to your game. Don't forget to make a skin for your brand-new body mesh.

MAKING NEW BODY TYPES

Using *Body Warp* to make fat and skinny meshes

Your fat and skinny Sims are getting resentful over the fact that you have a few hundred fit meshes, but only a handful of fat and skinny meshes. You seem to be playing favourites. The only way you can assure the non-Hollywood figured Sims is by making more fat and skinny bodies. If you want a fast, easy method for making fat and skinny meshes, you can use *Body Warp*. *Body Warp* can scale your fit meshes up or down a notch. All you need to do is open the mesh, click on the mesh and scale it up (End) or down (Home). The down side is that the mesh will keep the proportions of the original mesh. If you started with a curvy, über fit mesh, you'll get a curvy, über skinny mesh. You will need *Milkshape* for spot reductions and curve removal or addition – (sigh)... lucky Sims!

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in hindsight

introversion games uplink

THE PAST IS A DIFFERENT COUNTRY. THEY MAKE GAMES THERE...BUT DIFFERENTLY. WE ASKED THE TEAM AT INTROVERSION HOW THEY SEE THEIR WORK IN RETROSPECT. BY KIERON GILLEN.

INTO INTROVERSION

Introversion's brief discography explored.

UPLINK
Their debut underground smash of 2001, first released online before getting a shop edition. Taut, clean, hacking strategy game. Feels authentic while being nothing like the real thing at all. The 'no-save' model adds a genuine risk to the game.

DARWINIA
Introversion's second game, *Darwinia*, is a very different beast. It seems to take an action/strategy approach with a retro-graphic aesthetic. It recalls games like *Cannon Fodder* and *Syndicate*. Due August 2004.

PCFORMAT SAID

Uplink
PCF 134 – 81%

"It's an utterly engrossing experience that makes you feel as tense or exhilarated by turns as any game in recent memory. And best of all, it's so convincing that we kept checking we weren't actually tapping into the International Academic Registry. A shame – we always wanted better GCSE results."

Uplink came out of nowhere. Or rather, it came out of a jiffy bag, and sat on your humble correspondent's desk for a good week before he tried booting it up and actually playing it. At which point it was rapidly passed around a circle of games journalists, who then brought the word to the people. The rest is history. It impressed through strength of vision, quality of execution and classical game design, and was the underground cause célèbre of the period.

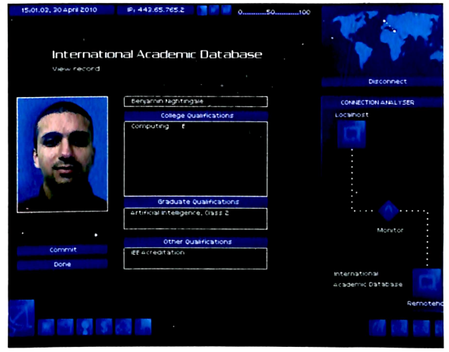
Most relevantly, it was the bedroom coded hit of a period which simply didn't believe bedroom-coded hits could be made anymore. While sales were never huge, the size of the team meant it could be a profitable venture. Anyone wanting to make a game without the support of a City-listed corporation should consider Introversion's experiences before taking the plunge.

Uplink was originally conceived as a game named *Terminal*. where you played a computer hacker slowly improving his system by earning money from hacking increasingly secure systems. So, yes, identical to *Uplink*. However, the execution was wildly different. "It was much more William Gibson-esqe," notes *Uplink* creator Chris Delay, "You were plugged into your computer and you could apply mods to your body while you were jacked in. I always had the idea that hackers would be able to attack each other directly, causing brain damage or memory loss on their targets." This was rapidly rethought in the first few months, however, when they decided to ground it in a more contemporary – hence authentic – setting. We talked to Chris about his experiences.

GameMaker What initial problems did you face when putting *Uplink* together?
Chris Delay How the hell do you make a game about hacking? When I started, this was the big question, since hacking is fundamentally pretty dull and laborious. Making the act of hacking interesting and challenging was very hard, and in the end it comes down to balancing the amount of realism. *Uplink* is sufficiently close to people's idea of hacking that it remains realistic in those eyes, but genuine hackers wouldn't be fooled. In reality, *Uplink* is a long way from the real thing. This was pretty much a constant balancing act throughout the whole development process, deciding which parts to keep real and which parts to dumb down.

GM *Uplink* offered a game world where players could expand their toolset and abilities, in the style of a role-playing adventure. Did this cause you any problems?
CD It's very hard to keep that up in a game for long periods of time. *Uplink* gives people new types of missions and hardware and software all the way through the game, but it eventually runs out of new stuff to show the player and becomes something of a grind. If you compare a player's progress within *Uplink* to a player's progress within a traditional RPG (like *Anarchy Online*), you realise that *Uplink* actually plays very fast and you can rocket up the rankings very quickly indeed. You can spend 100 hours working up a really good character in *Anarchy Online*, but we've learnt from our forums that most games players have pretty much seen everything in *Uplink* in around ten hours. And again it's a balancing act. We could have made it much harder, so you would have had to spend 100 hours reaching the top, then the sense of achievement in the five per cent of players that managed it would have been amazing.

GM You've created a number of patches for *Uplink*, which added a considerable amount of content to the game. What prompted this and were you pleased with the results?
CD We had a lot of very good ideas lying around that we never had time to finish for the release of the game, and we had an awful lot more ideas come to us after the game went out. Once we started getting feedback, we felt, as I've said, that the game was too easy at the higher levels, and too automatic – defeating a system was simply a matter of running the correct program at the correct time. So we designed a whole new system around Local Area Networks, which are basically explorable dungeons. As you explore a LAN, you run into various security systems and locks and terminals, and you have to find ways around them. It was a very deliberate effort on our part to make the player think and plan while he was hacking, and to do it fast.

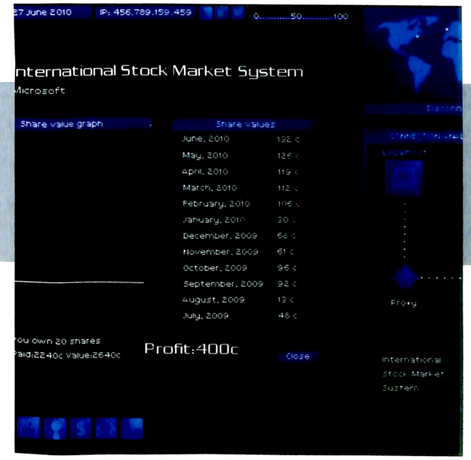


Indiana Jones knew he shouldn't have got on the plane with the drunk pilot.

Make the grade. One way or another.

Remember: setting up a home LAN for a quick game of Quake makes you vulnerable to HACKERS.

Graphs are sexy. Include some in your game.



GUERILLA MARKETING

From zero marketing budget to target audience.

For roughly the first three months, we built the business out of web discussions. We'd set up threads on different web forums, and we'd get people talking about the game. Then they would go and tell other people, and talk about it in other web forums. *Uplink* was a really underground game then, with a small cult following that we kept asking to do our advertising for us. We ran competitions and promotions where the aim was to tell people about the game. We offered free bonus disks (equivalent to the bonus features on a DVD) to people who could convince one other person to buy the game. Everything was geared up to getting the fan base to advertise the game as widely and as loudly as possible, and we had a lot of fun making it happen.

We started this in October 2001, and by January 2002 the first print magazines started paying us attention. We sent review copies out to the major games mags like *PC Gamer and PCFormat* after they requested them, and then we really started to see large numbers of people coming on to our site. By this point we were selling tons of copies and we still hadn't spent a penny on marketing.

GM What were you most pleased with overall in terms of the project as a whole?
CD One of my primary aims was to make people feel scared like a hacker. I wanted to create paranoia – a constant worry that you hadn't cleaned up your logs after a hack, or that someone was tracking you and getting closer and closer. I wanted people to feel on edge throughout the whole game, which is why a lot of people get caught a few hours after a major hack – once a mission is complete you can't sit back and breathe a sigh of relief, because you're never 100 per cent certain you did everything right. And one mistake means Game Over, so a lot of the time you really are risking your character and all of the work you've done.

GM And what weren't you so pleased with?
CD Fundamentally, it's still a bit short, despite all the patches and extras. I've learnt through experience that there really is only so much content that one person can create – there is a limit.

Also I think *Uplink* was a little buggy. Again we've sorted that now with the patches, but the truth is we didn't have very good QA at the time, and a few nasty bugs crept into the release version. This is something we've paid a lot more attention to for *Darwinia* (see box-out above) and hopefully that's one problem that shouldn't surface again in future Introversion games.

GM What advice would you give to other independent developers while working on their game?
CD Probably the biggest thing we've learnt with *Darwinia* is that content is extremely hard and time consuming to create. In *Uplink*, the problem was less pronounced because everything was very minimalist. But with our next game we started designing loads of levels and objects and a big story, and there are only two of us working on it, so we ran into loads of problems making it happen.

Uplink was almost entirely procedurally generated – ie, there are hundreds of companies and computers and people in the *Uplink* universe, but they are all randomly generated using a series of algorithms and templates. There is some hard coded stuff like the plot arc, but very little of this. This method is great for small teams, because you can build massive, endless worlds with much less effort. Look at *Elite*, for example – they managed to make a whole galaxy and fit it easily into your Spectrum, since it was all procedurally generated.

The modern alternative is to have very content-heavy games, with specific, hand-crafted locations and people and plot lines. Most modern games like *Max Payne* and *Medal of Honour* adopt this approach, and it's great if you have a team of 50 people, but it's totally impossible if you're small. And what tends to happen is that companies put hundreds and hundreds of man hours into designing and creating a location, and the player runs through it in a few minutes and never comes back. You need so much cash and resources to make this happen.

I guess what I'm saying is that you really have to pick your battles when you're a small company. You just can't win on the graphics and levels front until you have those 50 people working for you, so you have to come up with other ways to impress the player.

GM What are the main lessons you're taking forward from this project?
CD It's guerrilla warfare out there. You have to find areas of game design that the big companies are overlooking in their pursuit of realism, and tap into that. Games players were willing to overlook *Uplink*'s crummy interface and minimalist graphics and saw through to the game underneath. That was a great thing to see happen because it's what we always believed. The big companies have all the advantages in terms of content and graphics and animations, but they're inflexible and unwilling or unable to try any genuine experiments in gameplay. We are able to take those risks and that is the biggest single advantage of being a small independent company. And we must never lose sight of that.

odd mods

FOR EVERY CONVENTIONAL MOD, THERE ARE TWO UGLY SISTERS. MARK HOLTHAM PRAYS BEAUTY IS SKIN DEEP.

EARTH SPECIAL FORCES
FOR: HALF-LIFE

As purists, we believe that anime should be enjoyed in its original text, then, if drunk, followed by imaginary fighting with robot toys. Thanks to *Earth Special Forces* we don't have to resort to drink state to enjoy artificial anime action.

Earth Special Forces is based on Japan's popular TV series *Dragonball Z*. The pace and view–point is a change from the normal first person view games available for *Half-Life*. Playing from a third person view, you take control of one *Dragonball's* main characters, from Goku through to Cell. Their super human abilities can be spectacular when a player releases them in tandem with other players.

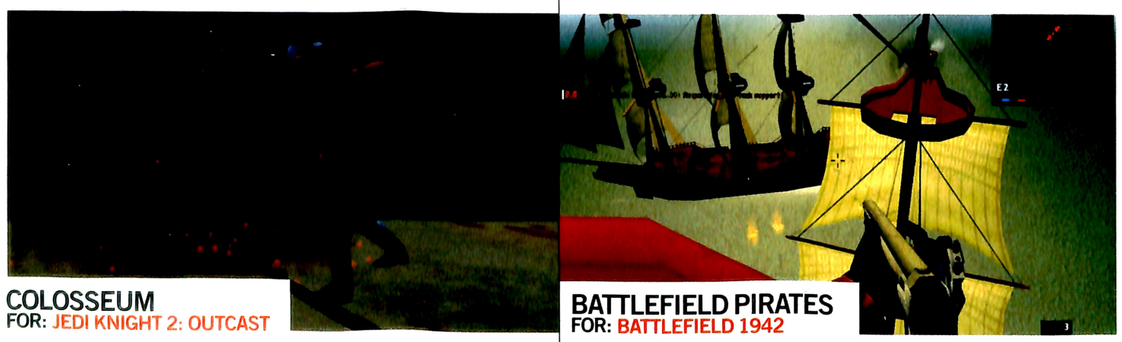
At its core, *ESF* is a team beat 'em up and nothing more. If you're still playing *Half-Life* and its mods, it's a nice change of pace. www.esforces.com

MR. PANTS EXCESSIVE OVERKILL
FOR: UNREAL TOURNAMENT 2003

Egotistical, brash – *Excessive Overkill* is the bully you left at school that had no inhabitations about stripping you naked, then throwing you in to the girls' locker rooms. Mutators for *Unreal Tournament 2003* are common but not many offer the level of creative carnage that *Excessive Overkill* exerts.

As well as adding *Flamethrower* to the standard crop of weapons, *EO* has modified all the weapons to the point where they pack more power than an A-Team converted Cornetto.

The only downfall to this mod is when you play on small maps. With so many projectiles flying around, lower powered cards might struggle to keep up with the action. It's only a small issue, as to enjoy *EO* at its fullest you will need to play in a large arena. www.planetquake.com/excessive/Q3.shtml



COLOSSEUM
FOR: JEDI KNIGHT 2: OUTCAST

Through the ages, man has tried to look his best for battle. It's questionable as to why man has chosen a skirt for his most battling era: ease of use over style? Today, only the Scottish and Eddie Izzard can do the skirt justice for man.

This Gladiatorial take on *Jedi Knight 2: Outcast*, sees you play as Gluteus Maximus, a thief who has been captured and forced to participate in Roman–esque bloody combat. It's a simplistic path that you follow. Fighting one opponent to the death is followed up with a more challenging contestant.

Execution and game construction is fantastic; only a few items disrupt the suspension of disbelief. It's questionable as to whether this is actually an Odd Mod, as it does successfully beat other gladiator themed games on all platforms. www.jakekeating.com/thesis/

BATTLEFIELD PIRATES
FOR: BATTLEFIELD 1942

The name *Pirates* is slightly misleading. You don't play with any avatars with black beards or parrots on shoulders. Instead, it pits you against similarly clad colonial soldiers, red or blue, in some pretty uniquely designed maps.

Ocean combat levels allow you to take control of sea galleons or aid your team by mopping your poop decks with your enemy's innards. Should you venture on to the starboard bow, you will find some very nauseating rocking of the boat as the sea batters your ship.

On land, the greatest oddity is the Crocodile vehicle. Hugging the ground as you drive around sniping at your enemy's feet can be enormous fun. Developers haven't bothered to change the vehicle sounds whilst driving the Crocs, which adds to the humour. www.innerempire.com/bfpirates

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